FINAL

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Source Removal Evaluation Report

for

Old Fire Fighting Training Area

Naval Education and Training Center
Newport, Rhode Island

Northern Division
Naval Facilities Engineering Command
Contract Number N62472-90-D-1298
Contract Task Order 0288

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Brown & Root Environmental

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SOURCE REMOVAL EVALUATION REPORT

FOR

OLD FIRE FIGHTING TRAINING AREA

NAVAL EDUCATION AND TRAINING CENTER
NEWPORT, RHODE ISLAND

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

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APPENDICES

1.0 INTRODUCTION

This Source Removal Evaluation report has been prepared under the Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract Task Order (CTO) 0288 dated January 28, 1997. The work plan required Brown & Root (B&R) Environmental to assess whether a removal action of potential sources is warranted at the Old Fire Fighting Training Area (OFFTA) located at the Naval Education & Training Center (NETC) on Coasters Harbor Island, in Newport, Rhode Island (Drawing No. 1).

The 5.5-acre OFFTA was used to train Navy personnel in fighting fires on ships during the period from approximately World War II until 1972. OFFTA historical information presented in the Draft Final Phase II Remedial Investigation (RI) Report, prepared by TRC Environmental Corporation (TRC) in July 1994, indicated that fuels, oils, and spent solvents had been used at OFFTA to set the fires for training purposes. TRC surmised from pre-construction drawings (c. 1943) and a 1944 aerial photograph that approximately 69,000 square feet of the site was used for actual fire fighting practices. Drawing No. 1, presented in Appendix A is a base map that presents the boundaries of OFFTA and major current features.

This report summarizes the field investigation findings, identifies potential contaminant sources, presents estimates of contaminant volumes and types, identifies whether conditions exist that may warrant a non-time-critical removal action (NTCRA), and provides recommendations for further action.

1.1 PROJECT OBJECTIVES

The objective of this source removal evaluation is to determine whether site-specific conditions present at OFFTA are comparable to one or more of the eight conditions, as presented in the National Oil and Hazardous Substances Contingency Plan (Title 40, Code of Federal Regulations, Section 300.415), which may require a removal action to protect public health or welfare, or the environment.

Previous investigation results presented in the Draft Final Remedial Investigation Report (TRC, August 1994), aerial photographs, and as-built drawings were used to preliminary identify targets for this investigation. Review of the RI data indicated that potential contaminant sources may still

be present on site in the subsurface. The potential sources may include: defunct underground oil and fuel storage tanks and piping, subsurface drains, asphaltic materials eroding along the shoreline that may enter Narragansett Bay, and free product (petroleum hydrocarbons).

The field investigation for this task also included collecting data that is not essential to evaluating the need for a source removal. These data were collected to supplement the analytical data base that will be utilized to complete the remedial investigation for OFFTA. As a result, Appendix B may include analytical data that is not discussed in detail in this report.

1.2 REPORT ORGANIZATION

The format of the Source Removal Evaluation Report is presented below:

- Section 1.0 presents an overview of the project and the objective of the investigation.
- Section 2.0 summarizes the field investigation activities.
- Section 3.0 presents an evaluation of the field data collected during the investigation.
- Section 4.0 presents the conclusions drawn after evaluation of the data and recommendations for further action. Additionally, Section 4.0 presents the eight conditions, as presented in the National Oil and Hazardous Substances Contingency Plan (Title 40, Code of Federal Regulations, Section 300.415), and includes a discussion on the applicability of the conditions to observations made at OFFTA.

2.0 SOURCE REMOVAL INVESTIGATION ACTIVITIES

The source removal evaluation was performed to assess the presence or absence of potential discrete contaminant sources at the site, and to determine if site conditions warrant a removal action to protect public health or welfare, or the environment. The site currently has unrestricted access and is used for recreational activities. Site field investigation activities were conducted in June and July of 1997 and included the following:

- Performing a metal and buried piping survey
- Excavating and backfilling 17 test pits
- Advancing two soil borings with subsequent completion as overburden groundwater monitoring wells
- Collecting and analyzing 21 subsurface soil and aqueous samples from the test pits
- Collecting and analyzing two subsurface soil samples from the soil borings
- Measuring groundwater levels
- Collecting and analyzing 17 groundwater samples from existing and newly installed wells
- Collecting and analyzing six shoreline sediment samples
- Collecting and analyzing three storm water samples
- Surveying all sample, boring, and test pit locations

Unless otherwise specified, all tasks were conducted in accordance with the approved technical approach and procedures presented in the draft Source Removal Evaluation Work Plan (B&R Environmental, May 1997), and the responses to comments to United States Environmental Protection Agency (US EPA) and Rhode Island Department of Environmental Management (RIDEM) review comments (US EPA, 1997; RIDEM, 1997). Samples were collected and analyzed according to the quality assurance/quality control criteria defined in the Quality Assurance/Quality Control section of the Source Removal Evaluation Work Plan.

Drawing No. 1 (Appendix A) depicts the physical features and field investigation sampling locations. All of the sample analytical results are discussed in Section 3.0 of this report, and validated data tables are included in Appendix B. Separate discussions for each aspect of the field investigation follow.

2.1 METAL AND BURIED PIPING SURVEY

The metal and buried piping survey was conducted in select areas across the site. The survey aided in locating test pits excavated to investigate subsurface features that could represent potential source(s) of contamination. Based on site drawings and aerial photographs, probable locations of subsurface contaminant sources were surveyed with a magnetic metal locator to mark the potential locations of potential buried piping, underground storage tanks (USTs), and an oil-water separator shown to be associated with former OFFTA activities. These structures may have been left in place as the property was redeveloped from a fire fighting training area to a recreational facility.

Multiple areas of strong signals were identified and marked. Based on a 1953 Area Development Plan for Steam and Return Fuel on Coasters Harbor Island (Bureau of Yards and Docks Drawing No. 637871), potential locations of five USTs, former circular open fire tanks, former Buildings 132 through 135, and an oil-water separator were measured from Building 144 and its immediate vicinity using a transit level. These primary areas of interest were marked and the ground re-surveyed with the metal pipe and cable locator. Strong signals, registered in proximity to the potential subsurface features, were investigated during the test pit excavation program.

2.2 SUBSURFACE SOIL INVESTIGATION

A subsurface soil investigation was completed and included excavating test pits, and drilling soil borings.

2.2.1 Test Pit Excavations

Test pit excavations were conducted at selected locations to confirm and evaluate the potential presence of subsurface features (underground piping and USTs, etc.) identified during the metal detection survey, to perform a limited assessment of the central mound immediately north of Building 144, and to characterize select portions of the OFFTA.

Seventeen test pits were excavated using a CAT 311 hydraulic excavator with support from a backhoe. Test pit excavations were performed according to the technical approach and procedures described in the draft Source Removal Evaluation Work Plan (B&R Environmental, 1997) and in the US EPA and RIDEM Responses to Comments (US EPA, 1997; RIDEM, 1997).

All test pit measurements and observations were recorded on test pit logs, as presented in Appendix C. The dimensions of the test pits/trenches were approximately 4-feet wide and 10- to 31-feet long. Test pit depth was based on specific conditions encountered at each location. Although attempts were made to excavate to the groundwater table, bedrock refusal or the presence of construction debris in several test pits (TP-01 through TP-03 and TP-06 through TP-10) precluded further excavation. At test pit TP-04, excavation was halted due to the presence of potential asbestos containing material. In test pit TP-12, a buried clay pipe was encountered and broken during excavation activities. When encountered, small metal debris in the test pits was placed to the side of the excavation as the excavations progressed. Attempts were made to describe but not disturb larger pieces of buried piping.

Each test pit was documented through photographs and videotape. An effort was made to leave the test pits open until 2:00 PM each day for viewing and documentation by RIDEM personnel. After 2:00 PM each day, all but the top 12 inches of excavated material were returned to the excavation and compacted, then graded to ground surface with clean top soil, seeded, and staked for survey purposes.

2.2.1.1 Test Pit Sampling

Soil samples were collected from each test pit excavation, with the exception of test pits TP-01, TP-03, TP-09, and TP-10. In test pit TP-01, a 4- to 6-inch layer of asphalt pavement was underlain by a gravely sand, and a conglomerate bedrock approximately 1 foot below ground surface (bgs). A soil sample was not collected because no visual observations of contaminants were made. In test pits TP-03 and TP-09, soil samples were not collected because bedrock was encountered approximately 3 feet bgs in each test pit, and no target features or visual contaminants were identified. In test pit TP-10, refusal (a concrete surface with exposed rebar) was encountered at 9-inches bgs.

Where feasible, soil samples were collected in the immediate vicinity of a target feature (buried piping, etc.), directly from a sidewall of the test pit, or from the excavator bucket using decontaminated stainless steel trowels, bowls, and disposable, sterile scoopulas. Each soil sample was analyzed for Target Compound List/Target Analyte List (TCL/TAL) organic and inorganic parameters and Total Petroleum Hydrocarbons (TPH). Analytical results are discussed in Section 3.0 and the data are presented in Appendix B.

During excavation of test pit TP-12, a clay pipe was encountered and broken. The material that discharged from the pipe appeared to be mostly water with a sheen. An aqueous sample was collected from test pit TP-12 for TPH analysis. At the request of RIDEM, aqueous samples were also collected from test pits TP-13, TP-14, and TP-15 for TPH analysis.

2.2.2 Soil Boring Investigation

Two soil borings were advanced to investigate the presence of contaminant sources and to supplement characterization of the site stratigraphy. Borehole locations are presented on Drawing No. 1 as MW-101 (SB-1) and MW-102 (SB-2). The soil boring locations were selected based on observations made during test pit excavations and the lack of existing monitoring wells in the central portion of the site. All soil boring observations were recorded on boring logs, as presented in Appendix C.

Each subsurface soil boring was advanced using nominal 4-inch inside diameter, flush joint, temporary steel casing and standard drive and wash drilling methods. A 24-inch long split-barrel sampler with a nominal outside diameter of 3 inches was used to collect samples continuously from the ground surface to refusal. The 3-inch diameter sampler was selected to maximize the probability of collecting a sufficient volume of subsurface soil for sample volume requirements. Standard penetration tests were not conducted (as this requires the use of 2-inch outside diameter samplers); however, blow counts were recorded for each 6-inch interval penetrated.

The physical characteristics of each soil sample were described using the Unified Soil Classification System (U.S.C.S.) and recorded on boring logs, presented in Appendix C. A geologist maintained the boring logs for each borehole from which samples were collected. In addition to sample characteristics, other pertinent observations such as water levels, sample moisture, depth changes in lithology, flame ionization detector (FID) readings, fill material, and the presence of any staining, and visual contaminants or odors were recorded on the boring log. General observations such as sample number, type, time, and depth, sample interval and recovery, and drilling and sampling equipment and methods used were also recorded on each boring log. As each split-barrel sampler was opened, the soils were monitored for organic vapors using a FID. A portion of the soil was initially removed and containerized for volatile organic compound analysis; the remaining material was homogenized in a

stainless steel bowl and containerized for analysis. Soil boring cuttings were contained in a labeled DOT-approved 55-gallon drum.

One soil sample from each boring was selected and shipped to an off-site laboratory for TCL volatile organic compound (VOC), TCL semi-volatile organic compound (SVOC), TCL pesticides/PCBs, total TAL metals, and TPH analysis as described in the work plan. The criteria for sample selection was based on the presence of visual observations of oil-like residues and field screening results. The soil boring sample designation is consistent with the groundwater monitoring well installed in each boring (OFF-S-MW102-0608 represents the soil sample from the borehole into which MW102 was constructed).

2.2.3 Groundwater Investigation

Two monitoring wells were installed, developed, and sampled along with 13 existing monitoring wells.

2.2.3.1 Monitoring Well Installation

The Source Removal Evaluation included installing two shallow groundwater monitoring wells (MW101 and MW102) screened across the water table in the overburden. The objective of these wells was to supplement the existing well network to better evaluate current groundwater contaminant conditions and elevations, and possibly identify a source area of contamination. Well locations are presented on Drawing No. 1. Information collected during the test pit excavation program was used to select well locations. Both wells were placed downgradient of test pits that exhibited signs of potential petroleum contamination (stained soils, odors).

The overburden wells were installed in boreholes advanced using standard drive and wash drilling methods. Minimum 4-inch inside diameter casing was used to advance the borings to refusal. Refusal was encountered in MW101 at 13 feet bgs and at approximately 29 feet bgs in MW102. Potential till-like layers were encountered at these depths. The boreholes were backfilled with a bentonite slurry and sand mixture to the desired interval for well construction and screen emplacement.

Monitoring wells were constructed in accordance with the draft Source Removal Evaluation Work Plan, US EPA and RIDEM Responses to Comments (US EPA, 1997; RIDEM, 1997), and as modified below. Each well was constructed of 2-inch inside diameter, non-glued, flush-jointed, threaded Schedule 40 PVC casing. Screen lengths were selected based on subsurface conditions. Monitoring well MW101 was constructed using 5 feet of screen (3 to 8 feet bgs) based on the presence of visual contamination (petroleum-like sheen) at a maximum depth of 8 to 10 feet bgs, and an initial water level at approximately 5 to 6 feet bgs. Monitoring well MW102 was constructed using 10 feet of screen (2 to 12 feet bgs), based on the presence of petroleum-like residues to 16 feet, an initial water level at 4.5 feet bgs, and an FID reading up to 2,700 parts per million (ppm) from oily sands 6 to 8 feet bgs. A fine to medium sand was backfilled to approximately 0.5 feet above the well screen and a 0.5 to 1-foot thick bentonite seal was placed above the filter pack. In MW101, a 0.5-foot thick layer of sand was added to serve as a drainage layer beneath the protective casing. In MW102, cement was placed in the well annulus from the top of the bentonite seal to the ground surface. Steel, flush-mount protective casings (extending 1 foot below the ground surface) with bolt-down covers were securely set in concrete over the PVC risers. The protective casing tops were set at a height to prevent surface water from flowing into the well casings and to minimize impacts to current site uses. Refer to Appendix C for well construction details.

As described in the work plan, the State of Rhode Island Groundwater Quality Regulations specify that the well screen slot size shall retain at least 90 percent of the grain size of the filter pack. Soil descriptions at borings MW101 and MW102 indicate the presence of silty gravely sand and silty sand, respectively, along the screened intervals. Therefore, a No. 10 (0.01 inch) screen slot size and a No. 1 sand were chosen for monitoring well construction to minimize siltation of the well. A uniform No. 1 sand has an effective grain size (D10 = 10 percent passing or 90 percent retained) of approximately 0.035 inches. The No. 10 screen size retains at least 90 percent of the grain size of a uniform filter pack sand.

2.2.3.2 Well Development

Following well installation, an initial well inspection was conducted and the depth to water was measured to the nearest 0.01 feet using an electronic measuring device. Each well was developed to remove fines and suspended particles from the vicinity of the well screen. Groundwater was evacuated from the wells until water quality parameters for pH, conductivity, and temperature stabilized. Each monitoring well was pumped for approximately 1.5 hours and readings were taken

approximately every 5 to 10 minutes. Because visual clarity was not attained after one hour, a turbidity standard of plus or minus 10 percent of successive well volumes was used as a guideline for completing development. This was achieved at MW102 but not at MW101. More than 10 well volumes were removed from MW101 and all field parameters, with the exception of turbidity, were stabilized prior to stopping development. Existing well MW-6R was re-developed. All water removed from the wells during well development activities was containerized in DOT-approved 55-gallon drums.

2.2.3.3 Groundwater Sampling

Groundwater samples were collected and analyzed to assess current groundwater contaminant conditions and the potential presence of light non-aqueous phase liquids (LNAPLs). From July 8 to July 11, 1997, groundwater samples were collected from 13 of 14 existing wells (MW-6S was dry) installed previously by TRC. In addition, samples were collected from two newly installed wells (MW101 and MW102) approximately 24 hours following well development.

Prior to sampling, the groundwater level of each monitoring well was measured to the nearest 0.01 foot using an electronic measuring device. Water level readings were collected within a 1.5 hour period surrounding high tide on July 8, 1997, and again on July 11, 1997, during a rising tide. Negligible differences were noted between the water level readings. Additionally, each water column was monitored for the presence of separate phase petroleum products, including both LNAPLs and dense non-aqueous phase liquids (DNAPLs), with an oil/water interface probe. No positive signals (indicative of the presence of NAPLs) were recorded by the instrument in any of the wells during either round of measurements.

Groundwater sampling was performed in 15 wells (13 existing wells and two newly installed wells) using USEPA Region I low stress (low flow) purging and sampling procedures. These samples were analyzed for TCL VOCs, TCL SVOCs, TCL pesticides/PCBs, TAL metals, and TPH. In addition, and at RIDEM's request, groundwater from monitoring wells MW101, MW102, MW-9R, and MW-6R was sampled for dissolved TAL metals analysis using standard bailing techniques. The samples for dissolved metals analysis were field-filtered through a disposable 0.45 micron filter following collection, and immediately preserved with concentrated nitric acid prior to shipment. All purge water was containerized in DOT-approved 55-gallon drums at a central storage location.

2.3 SHORELINE SEDIMENT INVESTIGATION

Shoreline sediment sampling was conducted to primarily assess whether asphalt debris along the northern shoreline of Coasters Harbor Island is a contributing source of PAH contamination in the near shore and off-shore sediments. The island's northern shoreline is eroding; asphalt pavement debris disposed along the shoreline, may have been a potential source of PAH contamination in near-shore sediment samples previously collected during the RI.

Another potential source of PAHs evaluated during this investigation was an 8-inch diameter cast-iron pipe. The pipe outlet is located approximately 45 feet north of the northern shoreline. A section of the pipe is only visible at low tide. The pipe outfall extends into and under the water; a sample could not be obtained from the pipe outlet because it was submerged. Refer to Drawing No. 1 for the pipe location. Based on available historical drawings, the pipe may have been connected to the oil/water separator associated with former OFFTA activities. An initial inspection revealed that marine sediments around the pipe exhibited a dark coloration and a sulfur-like odor. Though originally planned as a shoreline sediment sample, sample SS-1 was collected to characterize marine sediments in the vicinity of the pipe and to evaluate potential PAH contamination.

Five sediment samples (plus one field duplicate) were collected along the northern and eastern shorelines (SS-1 through SS-5). Refer to Drawing No. 1 for sampling locations. A reconnaissance of the exposed shoreline was performed initially. Of the samples collected from the northern shoreline, two sediment samples (SS-2 and SS-4) represented a mix of weathered asphalt pavement and natural shoreline materials; one sediment sample (SS-3) was comprised solely of asphalt pavement collected from a large mound of asphalt pavement debris; and one marine sediment sample (SS-1) was collected in the immediate vicinity of the exposed pipe at low tide. One sediment sample (SS-5) was collected from the eastern shoreline since this area contained less fill material and debris than other areas. All sediment samples were analyzed for TCL SVOCs, TCL pesticide/PCB compounds, and TPH.

Marine sediment sample SS-1, chiefly composed of fines/silts, was collected from the intertidal zone, which is inundated during every high tide cycle. The shoreline sediment samples, SS-2 through SS-5, may only be wetted seasonally and are composed of coarser materials compared to SS-1.

2.4 STORM SEWER OUTFALL INVESTIGATION

The objective of the storm sewer outfall investigation was to determine if PAH constituents were discharging from the storm sewers. Sampling an outfall pipe on the northern shoreline was eliminated as a potential sample location because no visible water was flowing from the pipe at low tide. At high tide, the pipe outfall is under water.

In the absence of effluent from the storm sewer pipe outfall on the northern shoreline, two other sample locations were selected. Two storm sewer samples (plus one field duplicate) were collected from a storm drain system that is in-line with the outfall on the northern shoreline (SW-1 and SW-2). Storm sewer sample SW-2 was collected from a manhole on the western side of the central mound. The remaining samples were collected from a catch basin, upgradient of the site along Taylor Drive. Sample locations are depicted on Drawing No. 1 presented in Appendix A. Any surface water that drains across the parking lot adjacent to Building 158 flows into this catch basin, which then flows north through the storm sewer. Based on available drawings, this network of underground piping connects with the manhole drainage system on site. From this junction, water flows further north and discharges through the outfall along the northern shoreline.

Upon removal of the on-site manhole cover, the area was vented for approximately 10 minutes. Water levels and conditions within each manhole/catch basin were recorded. An oil/water interface probe was used to measure visible petroleum-like sheens on the water in each structure. The instrument did not record signals, because there was no discernible thickness to the separate petroleum phase. Aqueous samples were collected and submitted for full TCL/TAL analyses and TPH.

2.5 LOCATION SURVEY

Following field sampling activities, the site was surveyed by a Rhode Island-registered surveyor. The horizontal locations and vertical elevations of existing and newly installed monitoring wells, test pits, marine and shoreline sediment sample locations, manhole covers, and a concrete slab excavated during the test pit program were determined in the survey. Additionally, the horizontal location of several prominent site features such as the corners of Building 144, the edge of asphalt, fences adjacent to the baseball field, the pavilion corners, utility poles, the baseball diamond, etc. were also surveyed. Survey control was maintained by referencing all horizontal coordinates to the State of Rhode Island Grid Coordinate System. Vertical elevations were referenced to the Naval Base mean low

water (mlw) level. For each monitoring well, three elevation measurements were required: the top of the uncapped well riser, the top of the protective casing, and the ground surface next to each well. Drawing No. 1 depicts all surveyed points across the site.

3.0 INVESTIGATION FINDINGS

This section of the report presents the analytical results from the B&R Environmental field activities discussed in Section 2.0, and an assessment of the absence or presence of potential discrete contaminant sources that may warrant removal. Laboratory analytical results for the samples collected during the Source Removal Evaluation are presented in Appendix B.

All sample analyses were conducted using U.S. EPA Contract Laboratory Program (CLP) methodologies, or Statement of Work (SOW) OLM03.1 and ILM04.0 analytical and reporting protocols. The data for all of the sample analyses were reviewed with reference to: "National Functional Guidelines for Organic and Inorganic Review", February 1994; "EPA Region I Volatile/Semivolatile Data Validation Functional Guidelines", December 1996; EPA Region I Functional Guidelines for Evaluating Inorganic Analyses, February 1989; and the Naval Facilities Engineering Service Center (NFESC) document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide", February 1996.

Data validation qualifiers were assessed during the data evaluation process. Unqualified data and data qualified with a "J" are considered detectable concentrations. Data qualified with "UJ" or "U" are considered non-detectable concentrations. Data qualified with "UR" indicate the nondetected results are uncertain/unusable and were therefore rejected.

In evaluating the data for this Source Removal Evaluation report, the analytical results data were averaged for each pair of sample and field duplicate concentrations. In instances when the duplicate pair consisted of a nondetected concentration and a detected concentration, a value equal to one-half the detection limit was averaged with the detected value and presented as the resulting concentration.

Tentatively identified compounds (TICs) were reported in the analytical data results for several of the aqueous samples analyzed for VOCs, SVOCs, and pesticide/PCBs. However, these TICs were not evaluated because the identification, presence, and concentrations of these constituents are uncertain.

To assess whether site subsurface soils, shoreline sediments, and groundwater posed potential threats or impacts to human health and the environment, the analytical results developed during

the Source Removal Evaluation were qualitatively compared to the direct exposure and leachability criteria presented in Section 8.00 of RIDEM's Remediation Regulations (DEM-DSR-01-93, amended August 1996), which include the Method 1 Soil and Groundwater Objectives.

Comparison of site contaminant concentrations with the Remediation Regulations would help identify whether these chemicals exceeded action levels established by the state to protect human health and the environment. The exceedences (if identified) along with site-specific information (depth of affected media, observation of physical conditions, identification of potential receptors, etc.) would be used to assess whether site conditions match one or more of the eight conditions identified in the NCP (40 CFR 300.415), which may warrant a removal action to address specific contaminant sources.

It should be noted that the need for long-term or site-wide remedial actions would be determined as part of the on-going Remedial Investigation and Feasibility Study process. Risks to human health and environmental receptors would be evaluated in the human health and ecological risk assessments that are tentatively scheduled for completion during 1998. The human health risk assessment will be performed consistent with the Remediation Regulations Method 3 Objectives, which calls for using site-specific factors to determine risks and to develop site-specific remedial objectives.

The OFFTA is currently used as for recreational purposes. The direct exposure criteria established in Rule 8.02B of the Remediation Regulations are applicable to potential industrial/commercial or residential exposures, but not for recreational exposures. The default input parameters (Appendix D of the Remedial Regulations) for the industrial/commercial exposure criteria indicate an exposure frequency of 250 days/year, an exposure duration of 25 years, and averaging times of 70 years for carcinogens and 25 years for non-carcinogens. These input parameters are more conservative than those that would be used for a recreational scenario (lower exposure frequency and durations). Therefore, the industrial/commercial direct exposure criteria values would be a set of reasonable allowable chemical levels to compare with site contaminant concentrations.

3.1 SUBSURFACE SOILS

Sixteen subsurface soil samples, plus QA/QC samples, were collected during the field investigation. This included 14 subsurface soils from 13 of the 17 test pits excavated and one soil sample from each of the two soil borings. A brief summary of field-related information follows:

- Piping was detected in TP-02, TP-04, TP-08, and TP-12. A cast iron pipe was observed at low tide protruding from the intertidal zone into Coasters Harbor. Remains of a concrete structure were uncovered in TP-13 and TP-16.

- Groundwater was viewed entering some of the test pits from approximately 4.5 feet (TP-14, nearest the shoreline) to 11.0 feet bgs (TP-16, lower slope of central mound). Groundwater was not visible in test pits numbered TP-01 to TP-04, TP-06, TP-08 to TP-10, and TP-12.

- Petroleum-contaminated soils were observed (and corroborated by the TPH chemical analysis) at the following locations, and at the noted depths bgs: TP-11 (5.0 feet); TP-13 (7.0 feet); TP-14 (4.0 feet); TP-15 (4.5 feet); and TP-16 (10.0 feet). Petroleum odors, but no visible contamination, were detected in TP-17.

- Petroleum-contaminated soils were observed (and corroborated by TPH chemical analysis) at depths ranging from 6 to 11 feet bgs in soil boring MW-101, and from 5 to 16 feet bgs in soil boring MW-102. Contaminant concentrations and the corresponding sample locations are presented on Drawing No. 2 (Appendix A).

3.1.1 Volatile Organic Compounds

The VOCs detected in the subsurface soil samples included methylene chloride and ethylbenzene. All other TCL VOCs analyzed were qualified as nondetected concentrations. Visibly stained soils (petroleum-contaminated) were initially observed 5 feet bgs during the excavation of TP-11. Visibly stained soils (petroleum-contaminated) were initially observed at 6 ft bgs, in soil boring MW102.

Methylene chloride was detected in 4 of 18 soil samples (including the duplicates) analyzed at a maximum concentration of 1,230 micrograms per kilogram (µg/kg) (TP-11, 5 to 6 feet bgs,

average value). Although blank contamination was noted for this compound, its presence at concentrations greater than ten times the aqueous action level (60 µg/L) indicates the probability of site-related presence of this VOC in the subsurface soils.

Ethylbenzene was detected in 1 of 18 soil samples analyzed, at a maximum concentration of 630 µg/kg. This constituent is an aromatic petroleum-related compound and was detected in the soil sample collected in MW102 at 6 to 8 feet bgs.

Compared to the industrial/commercial direct exposure criteria and the GB leachability criteria established in Rule 8.02B (Method 1 Soil Objectives: Tables 1 and 2), of RIDEM Remediation Regulations (amended August 1996), there were no exceedances for TCL VOCs in subsurface soils.

3.1.2 Semi-volatile Organic Compounds

Results of the subsurface soil SVOC analysis indicate that SVOCs are present throughout the site subsurface soils. Of the 18 subsurface samples analyzed for SVOCs (including QA/QC samples), only one sample (TP-02) did not contain detectable concentrations of SVOCs. Total estimated SVOC concentrations ranged from 1,100J µg/kg (TP-08) to 62,920J µg/kg (MW102).

Polynuclear aromatic hydrocarbons (PAHs) constituted the majority of the SVOCs detected in the subsurface soils. Carbazole and dibenzofuran were the only other SVOCs detected in the subsurface soils. Both pyrogenic (derived primarily from combustion or a source of creosote/coal-tar or asphalt) and petrogenic (derived primarily from petroleum products) PAHs were detected in subsurface soils across the site.

Total SVOC concentrations greater than 20,000 µg/kg were detected in soil samples collected from TP-11 at 5-6 feet bgs, TP-15 at 5-6 feet bgs, MW101 at 6-8 feet bgs, and MW102 at 6-8 feet bgs. These test pits and soil borings are located in the central portion of the site from Taylor Drive to Coasters Harbor. The highest total SVOC concentration (62,920 J µg/kg) was detected in a subsurface soil sample collected from MW102 at 6-8 feet bgs. Based on observations during the test pit and drilling programs, soil contaminated by petroleum was observed typically at or immediately above the water table. Visibly stained soils (petroleum contaminated) were observed in test pits TP-11, TP-15, soil borings MW101 (petroleum sheen only) and MW102.

Compared to the industrial/commercial direct exposure criteria established in Rule 8.02B (Method 1 Soil Objectives: Table 1) of RIDEM Remediation Regulations (amended August 1996), exceedances for TCL SVOCs in subsurface soil were noted for the following substances: benzo(a)pyrene, dibenzo(a,h)anthracene, and 2-methylnaphthalene. A brief summary of direct exposure criteria exceedances is presented below and tabulated in Appendix B.

- Benzo(a)pyrene was detected in 2 of 18 subsurface soil samples analyzed (TP-15 and MW-102), ranging in concentration from 0.97J milligrams per kilogram (mg/kg) to 4 mg/kg. The RIDEM industrial/commercial direct exposure criteria for benzo(a)pyrene is 0.8 mg/kg.

- Dibenzo(a,h)anthracene was detected in 1 of 18 subsurface soil samples analyzed (MW-102), at a concentration of 0.82J mg/kg. The RIDEM industrial/commercial direct exposure criteria for dibenzo(a,h)anthracene is 0.8 mg/kg.

- 2-methylnaphthalene was detected in 5 of 18 subsurface soil samples analyzed (TP-11, TP-15, TP-17, MW-101, and MW-102), ranging in concentration from 0.67 mg/kg to 11 mg/kg. The RIDEM industrial/commercial direct exposure criteria for 2-methylnaphthalene is 0.04 mg/kg.

All of the TCL SVOC concentrations above the RIDEM industrial/commercial direct exposure criteria were detected at depths ranging from 5 to 8 feet bgs. It's unlikely that such contamination will be associated with any viable exposure pathway to human receptors under current conditions, use of the property as a recreational facility, and depth of contaminated soils.

Method 1 GB leachability criteria have not been promulgated for any TCL SVOCs.

3.1.3 Pesticide/PCBs

Pesticides were widely detected across the site. Only five pesticides were detected of the 21 pesticides analyzed for presence in subsurface soils. These pesticides include heptachlor epoxide; 4,4'-DDE; 4,4'-DDT; Alpha BHC; and Gamma BHC (Lindane). Pesticide concentrations ranged from 1.2 µg/kg to 120.0 J µg/kg. The maximum concentration, 4,4'-DDT, was detected in subsurface soil from TP-04. Heptachlor epoxide was detected in 3 of 18 samples collected for TCL pesticide/PCB analysis.

Compared to the industrial/commercial direct exposure criteria and the GB leachability criteria established in Rule 8.02B (Method 1 Soil Objectives: Tables 1 and 2), of RIDEM Remediation Regulations (amended August 1996), there were no exceedances for TCL pesticide/PCBs in subsurface soils.

3.1.4 Total Petroleum Hydrocarbons

TPH is present throughout the site subsurface soils. Of the 18 subsurface samples analyzed for TPH (including QA/QC samples), only three samples (TP-05, TP-07, TP-08) did not contain detectable concentrations. TPH concentrations ranged from 130 J mg/kg (TP-06) to 21,000 mg/kg (TP-15).

Based on observations during the test pit and drilling programs, visible petroleum contamination was primarily observed in the central portion of the site, from Taylor Drive to Coasters Harbor. Refer to Drawing 4 in Appendix A. Soil contaminated by petroleum was observed typically at or immediately above the water table. The highest TPH concentration (21,000 J mg/kg) was detected in a subsurface soil sample collected from TP-15 at 5-6 feet bgs. TP-15 was excavated approximately 25-30 feet south of the shoreline.

Compared to the industrial/commercial direct exposure criteria and the GB leachability criteria established in Rule 8.02B (Method 1 Soil Objectives: Tables 1 and 2) of RIDEM Remediation Regulations (amended August 1996), exceedances for TPH were noted in 7 of 18 subsurface soil samples analyzed. TPH concentrations above the RIDEM criteria of 2,500 mg/kg for direct exposure and GB leachability ranged from 3,750 J mg/kg to 21,000 mg/kg in TP-11 through TP-16 and MW-102.

TPH concentrations above the State criteria were detected at depths ranging from approximately 3 feet bgs to 11 feet bgs. It's unlikely that such contamination will be associated with any viable exposure pathway to human receptors under current conditions, use of the property as a recreational facility, and depth of contaminated soils.

A summary table of RIDEM direct exposure criteria exceedances is presented in Appendix B.

3.1.5 Inorganics

A variety of inorganic analytes were detected in subsurface soil samples across the site. Concentrations of select metals in subsurface soils are presented on Drawing No. 3 (Appendix A). Twenty-one inorganic analytes were detected of the 23 inorganic analytes analyzed for presence in subsurface soil. Silver and thallium were not detected in any of the collected samples. TAL metals common to all of the subsurface soil samples collected included: aluminum, arsenic, barium, calcium, chromium, copper, cobalt, iron, lead, magnesium, manganese, nickel, vanadium, and zinc.

Selenium was detected in all but five samples; mercury was detected in all but six samples; and sodium was detected in all but seven samples. The least frequently detected concentrations included beryllium and cadmium. Each of these analytes was detected in 1 of 18 samples analyzed. The concentrations of all inorganics detected in subsurface soils range from 0.06 J mg/kg (mercury, TP-06 at 6-7 feet bgs) to 204,000 mg/kg (iron, MW102 at 6-8 feet bgs). Calcium, iron, magnesium, potassium, and sodium were not evaluated further because they are considered essential human nutrients.

Compared to the RIDEM Remediation Regulations (amended August 1996) for industrial/commercial direct exposure criteria, exceedances for TAL metals in subsurface soils established in Rule 8.02B (Method 1 Soil Objectives: Table 1) were noted for arsenic and lead. A brief summary of direct exposure criteria exceedances is described below and tabulated in Appendix B.

- Arsenic was detected at concentrations above the RIDEM criteria of 3.8 mg/kg in every subsurface soil sample collected across the site. Detected concentrations ranged from 4.1J mg/kg to 74.4J mg/kg at depths from 2 feet bgs to 11 feet bgs.

- Lead was detected at concentrations above the RIDEM criteria of 500 mg/kg in 5 of 18 subsurface soil samples analyzed. Lead concentrations in soils collected from TP-5, TP-13, TP-15, TP-16, and MW102 ranged from 540 J mg/kg to 7,820 J mg/kg at depths 5 feet bgs to 11 feet bgs.

It's unlikely that elevated metals presence will be associated with any viable exposure pathway to human receptors under current conditions, use of the property as a recreational facility, and depth of contaminated soils.

Method 1 GB leachability criteria have not been promulgated for any metals.

3.2 GROUNDWATER

Fifteen groundwater samples were collected from the OFFTA site and analyzed for TCL VOCs, SVOCs, pesticides/PCBs, TAL metals, and TPH. Groundwater samples were collected from five monitoring wells screened in the bedrock, one deep monitoring well screened on top of the bedrock surface, and nine shallow monitoring wells screened in the overburden. The locations of the monitoring wells are shown in Drawing No. 1. Selected data from this round of sampling are shown on Drawing Nos. 5 and 6 (Appendix A).

In accordance with RIDEM's Rules and Regulations for Groundwater Quality (August 1996), groundwater beneath Coasters Harbor Island (locality of former OFFTA site) is classified GB. Groundwater classified GB is presumed not suitable for use as a current or potential source of drinking water, and is subject to the GB Groundwater Objectives listed in Table 4 of the RIDEM Remediation Regulations (amended August 1996).

3.2.1 Volatile Organic Compounds (VOCs)

Two of fifteen groundwater samples collected had detectable VOC concentrations. These samples came from MW-101 and MW-102. MW-101 contained detectable levels of benzene (8 micrograms per liter (µg/l) and MW-102 contained detectable levels of both benzene (33 µg/l) and ethylbenzene (38 µg/l).

Compared to the RIDEM Remediation Regulations (amended August 1996) for GB Groundwater Objectives under Rule 8.03B (Table 4), there were no exceedances for TCL VOCs in groundwater.

3.2.2 Semi-Volatile Organic Compounds (SVOCs)

Of the fifteen groundwater samples, three had detectable SVOC concentrations. These samples came from MW-101, MW-102, and MW-11R. Groundwater samples from MW-101, MW-102, and MW-11R had estimated total SVOC concentrations of 375 µg/l, 28 µg/l, and 5 µg/l, respectively. All of the SVOCs detected in the analyses were PAHs, with the exception of carbazole. Carbazole was detected in the groundwater sample from MW-101 at an estimated concentration of 2 µg/l and in the sample from MW-102 at an estimated concentration of 1 µg/l. Petrogenic PAHs were the dominant group of PAHs detected in the groundwater samples. Phenol was the only PAH detected in the groundwater samples (MW-102 at 2.0 µg/l) that is not of a petrogenic origin.

Method 1 GB Groundwater Objectives have not been promulgated for any TCL SVOCs.

3.2.3 Total Petroleum Hydrocarbon (TPH)

The analytical results for TPH were below the detection limit for all fifteen groundwater samples.

While TPH levels were detected in the subsurface soils, none were detected in the groundwater samples. These results, in conjunction with the SVOCs analyses for soils and groundwater, indicate that while petroleum hydrocarbons are present in soils, little or none are partitioning or migrating into groundwater.

3.2.4 Pesticides / PCBs

The analytical results for pesticides/PCBs were below the detection limit for all fifteen groundwater samples.

3.2.5 Inorganics

A variety of inorganic analytes analyzed were detected in groundwater. Of the 23 inorganic constituents analyzed for presence in groundwater, 18 were detected. Concentrations of all inorganic analytes detected ranged from 0.02 µg/l (mercury at MW-2S) to 5,960,000J µg/l (sodium at MW-2S). The greatest number of the maximum detected concentrations of inorganic constituents were observed at MW-2S (5 of 18) and MW-3S (8 of 18). Inorganic concentrations

in MW-2S consisted mainly of essential nutrients or major components of sea water. As discussed previously, visibly stained soils (petroleum contamination) were observed in TP-11, in the vicinity of MW-3S. Analytical data is presented in Appendix B.

Negligible concentrations of lead were detected in 11 of 17 groundwater samples analyzed. Concentrations ranged from 1.6J µg/l to 207J µg/l at MW-3S. Based on the draft final RI, petroleum odors were noted at MW-3S (TRC, 1994). Lead exceedances in the subsurface soils correlate well with areas of observed petroleum contamination.

Though arsenic was detected in every subsurface soil collected, only negligible concentrations of arsenic were detected in 2 of 17 (MW-101 and MW-3S) groundwater samples analyzed. Arsenic concentrations in groundwater ranged from 44.5 µg/l to 49.8 µg/l.

Groundwater beneath the site is classified GB and as such is not suitable for use as a potable water supply. Presently, there are no regulatory standards for concentrations of metals in a GB aquifer with which to make comparisons.

Groundwater samples from four wells, MW-101, MW-102, MW-9R, and MW-6R, were collected for TAL metals analysis after being filtered. Filtered analyses have been included in Appendix B and have been labeled with an "F" that follows the rest of the sample number. In general, the filtered sample concentrations were lower than those collected using the low stress sampling procedure.

Groundwater from four onsite bedrock wells exhibited similar inorganic levels (i.e. orders of magnitude) to that of the offsite well, MW-6R, with the exception of iron, lead, nickel, vanadium, and zinc concentrations. The July 1997 groundwater data for inorganic constituents indicates iron concentrations in MW-6R were two orders of magnitude greater than MW-11R, an onsite well. Additionally, lead, nickel, vanadium, and zinc levels in groundwater from onsite bedrock wells were negligible compared to concentrations in the offsite well. These findings will be more fully evaluated in the RI.

Comparisons between the onsite and offsite overburden inorganic concentrations could not be made because the offsite overburden well, MW-6S, was dry at the time of sampling.

Overall, metal concentrations in the offsite well, MW-6R, were lower when sampled using the US EPA's low stress purging and sampling procedure versus a conventional bailing technique. Using the low stress procedure, attempts are made to collect groundwater samples indicative of mobile organic and inorganic loads at ambient flow conditions. Conventional bailing techniques do not readily allow groundwater samples to be collected under ambient flow conditions. Additionally, silt or suspended solids are often captured in the bailing process. The presence of these fines may yield misinformation as to the actual concentrations of inorganic constituents of the groundwater. According to the draft final RI, three turbidity values at MW-6R were greater than 200 NTUs during well development and greater than 1000 NTUs at the time of sampling (TRC, 1994). Groundwater samples with higher turbidity values typically have higher concentrations of inorganic analytes because of the presence of silts or suspended solids.

3.2.6 Test Pit Aqueous Samples

At the request of a RIDEM representative, aqueous samples were collected from three test pits (TP-13, TP-14, and TP-15), for TPH analysis. These samples were lost because of an accident at the laboratory during sample preparation/extraction when the sample containers were broken. In addition, an aqueous sample was collected from TP-12 after a clay pipe was broken during excavation. However, the laboratory determined that too little potential LNAPL in the sample was present to permit analysis.

3.3 SHORELINE SEDIMENTS

Five sediment samples (one marine and four shoreline sediment samples), denoted as SS-1 through SS-5, were collected and analyzed for TPH, TCL SVOCs, and pesticides/PCBs (See Drawing No. 1).

Total SVOC concentrations in the four shoreline and one marine sediment samples were highest in marine sediment sample SS-1, at an estimated concentration of 43,790 µg/kg. Shoreline sediment sample SS-3 (weathered asphalt specimen) yielded a total SVOC estimated concentration of 4710 µg/kg, while an analysis of adjacent shoreline sediment sample SS-4 did not detect the presence of SVOCs. Shoreline sediment sample SS-2, located within the weathered asphalt zone, yielded a total SVOC estimated concentration of 3000 µg/kg, while shoreline sediment sample SS-5, located east of the weathered asphalt, yielded a total SVOC estimated

concentration of 440 µg/kg. All of the SVOCs detected in the analyses were PAHs, except for carbazole. Carbazole was detected only in marine sediment sample SS-1 and at an estimated concentration of 310 µg/kg. Both pyrogenic and petrogenic PAHs were detected in the shoreline sediments.

Compared to the industrial/commercial direct exposure criteria established in Rule 8.02B (Method 1 Soil Objectives: Table 1) of RIDEM Remediation Regulations (amended August 1996), exceedances for TCL SVOCs were found only in marine sediment sample SS-1 for the following substances: benzo(a)pyrene and 2-methylnaphthalene. Sample results from shoreline sediment samples SS-2, SS-3, SS-4, and SS-5 did not exceed RIDEM's industrial/commercial criteria for TCL SVOCs. A brief summary of direct exposure criteria exceedances is presented below and tabulated in Appendix B.

- Benzo(a)pyrene was detected in 1 of 5 marine and shoreline sediment samples analyzed (SS-1) at a concentration of 2.25 J mg/kg. The RIDEM industrial/commercial direct exposure criteria for benzo(a)pyrene is 0.8 mg/kg.

- 2-methylnaphthalene was detected in 1 of 5 marine and shoreline sediment samples analyzed (SS-1) at a concentration of 0.21 J mg/kg. The RIDEM industrial/commercial direct exposure criteria for 2-methylnaphthalene is 0.04 mg/kg.

The SVOCs exceeding the Remedial Regulations industrial/commercial direct exposure criteria were only detected in the marine sediment sample, SS-1. Human exposure to these sediments are probably low because they are submerged during high tide, are wetted during low tide and are unlikely to become airborne, and the beach front does not appear to be used for swimming.

Concentrations of TCL SVOCs in marine sediment sample SS-1 are comparable to detections in offshore marine sediments collected by TRC (1994) in Narragansett Bay. These detections will be more fully evaluated by the Navy during the ecological risk assessment planned for this year. Compared to marine sediment sample SS-1, shoreline sediment samples SS-2 through SS-5 were collected in dry areas beyond the usual tidal cycle. The shoreline along from which sediment samples SS-2 through SS-5 were collected may only be wetted seasonally, and is composed of coarser materials. Marine sediment sample SS-1 was collected from the intertidal zone, which is inundated during every tidal cycle, and is wet even at low tide.

TPH concentrations were detected in SS-2 (120 mg/kg), SS-3 (4400 mg/kg), SS-4 (89 mg/kg), and SS-5 (180 mg/kg). TPH was not detected in marine sediment sample SS-1. The TPH content for SS-3 exceeds the 2,500 mg/kg level identified in the Remedial Regulations. Based on field observations, solid asphalt bits were noted in this sample and there were no oils or gasoline staining or odors noted. Therefore, the TPH analyses likely detected the presence of solid asphalt bits rather than the presence of liquid petroleum compounds. The presence of weathered asphalt is unlikely to pose any human health risks, especially since all SVOCs detected in SS-3 were below the industrial/commercial direct exposure criteria.

The analyses of shoreline sediment samples SS-1, SS-2, SS-3, and SS-4 did not detect pesticide/PCB contamination. Shoreline sediment sample SS-5 exhibited concentrations of 3.6 µg/kg of 4,4'-DDE and 11 µg/kg of 4,4'-DDT.

3.4 STORM SEWER

Two surface water samples (SW-1 and SW-2) were collected along a storm sewer that bisects the OFFTA site.

No VOCs were detected in samples SW-1 and SW-2.

Total estimated SVOC concentrations in samples SW-1 and SW-2 were 2 µg/kg and 5.5 µg/kg, respectively. Detected analytes consisted of bis(2-ethylhexyl)phthalate in SW-1 and bis(2-ethylhexyl) phthalate, and phenol in SW-2. During the RI, bis(2-ethylhexyl)phthalate was detected in both storm water samples at a concentration of 3 µg/l. PAHs were only detected in the sample from the outfall pipe. PAHs were detected in this location at a concentration of 10 µg/l.

Analytical results for TPH were below the detection limit of 1.0 mg/l for both SW-1 and SW-2. Visible petroleum-like sheens were observed on the water in each sample location. An oil/water interface probe did not indicate the presence of petroleum because there was no discernible thickness to the separate petroleum phase.

The analytical results for pesticides/PCB contamination were below the detection limit for both SW-1 and SW-2.

SW-1 and/or SW-2 had detectable concentrations of aluminum, arsenic, barium, calcium, chromium, copper, iron, lead, magnesium, manganese, mercury, potassium, sodium, vanadium, and zinc.

3.5 TEST PIT OBSERVATIONS

Field investigations were performed to assess the presence or absence of subsurface features associated with past fire fighting training activities, and to evaluate their potential to be discrete contaminant sources. The following subsurface features were observed during the test pit program: various piping, a metal pipe extending into Coasters Harbor, and portions of two concrete slabs. No underground oil and fuel storage tanks, UST access ports, drums, or ancillary piping associated with USTs as depicted on Public Works Department (PWD) Drawing No. 637871 (1953) were observed.

The following observations were made regarding the underground piping observed in TP-02, TP-04, TP-08, and TP-12:

- A 1.5 to 2.0-inch diameter pipe, aligned approximately east-west, was found during the excavation of TP-02. It could not be determined if the pipe was originally buried in this location or was disposed of as fill material. A slight petroleum-like residue was present, and FID readings up to 30 parts per million (ppm) were detected inside the pipe. No soil staining or petroleum-like odors were detected outside of the pipe.

- Two open-ended steel pipes, 3 to 4 inches in diameter, were exposed during the excavation of TP-04. Both pipes were pitched at low angles to the east. Potential asbestos-containing material was noted on each pipe. The 4-inch diameter pipe had a hanger on it indicating it was not intended for underground use. These pipes were potentially buried as fill material; they were surrounded by debris including brick, glass, wood shingles, and metal objects. No petroleum residues were noted in either of these pipes or in the surrounding soils.

- A 6-inch cast-iron pipe was observed in the southern portion of TP-08. This pipe was oriented northwest-southeast and, based on available drawings, likely represents an abandoned sewer line to Building 144. A residue was noted in the pipe but it did not appear to be petroleum related. No FID readings were detected inside the pipe. A low concentration of TPH (31 mg/kg) was detected in the subsurface sample collected from around the pipe.

- A clay pipe was encountered and inadvertently broken during excavation of TP-12. This pipe was located on the north wall of the test pit at approximately 5 feet bgs. Approximately 5 gallons of water with a sheen discharged from the pipe. An aqueous sample was collected from the test pit for TPH analysis. However, the laboratory reported the sample could not be analyzed for TPH because it contained negligible amount of oil. Specific information regarding the purpose and/or function of the pipe was not identified during this investigation. Soils above the pipe exhibited petroleum-like odors and analytical results indicate the presence of TPH (4,100 mg/kg).

The following observations were made regarding the pipe extending into Coasters Harbor:

- An 8-inch cast iron pipe was observed protruding into Coasters Harbor from the northern shoreline of the island. Approximately 11 feet of the pipe is visible at low tide. The pipe outlet was found approximately 25 feet beyond the shoreline. Upon inspection, the pipe appeared to be intact. Because the pipe's open-end was under water at low tide, the inside of the pipe was not inspected. At the time of inspection, it could not be determined if the pipe was discharging to the harbor. According to PWD Drawing No. 637869 (1953, sanitary and storm sewers), the 8-inch pipe shown extending into the harbor may have been connected to the oil/water separator.

The following observations were made regarding the concrete slabs (debris) in TP-6, TP-13, and TP-16.

- Concrete debris was observed at the base of TP-6 (7 feet bgs). The test pit excavation was stopped because no progress was made attempting to bypass the concrete. The concrete debris appeared to have an intact surface. Steel strapping was excavated at shallower depths in this test pit. Analytical data indicate the presence of TPH at a concentration of 130 mg/kg in the subsurface soil.

- Concrete debris was detected approximately 4 feet bgs in TP-13. The debris is at least 3-feet thick and vertically oriented with soil on both sides. The debris included exposed/broken rebar extending out the top surface, indicating it was at least partially demolished. Because excavation ceased when groundwater entered the pit (approximately 7 feet bgs), the vertical extent of the debris was not located. TP-13 was extended westerly (approximately 15 feet) to confirm the presence of additional debris, because Drawing No. 637869 depicts two structures for the oil/water separator. No additional debris was found to the west. Petroleum contamination was observed around the debris, in the subsurface soil, and soil pore spaces near the water table. Free product was not present. A subsurface soil sample from this pit has a TPH concentration of 7400 mg/kg.

- At the request of a RIDEM representative, additional exploration was performed in area of TP-13 to further expose the concrete debris in an attempt to confirm the potential presence of the oil/water separator. The test pit was extended approximately 13 feet to the east and 10 feet further south and is identified as TP-16. The southward excavation revealed the corner of the concrete debris, and also encountered other metal and construction debris in the lower portion of the central mound. The excavation to the east exposed the southern extent of the debris but no definition as to whether or not this debris represents a portion of the former oil/water separator. Additional work may be needed to identify the function of this subsurface feature.

3.6 ESTIMATED CONTAMINANT VOLUME

The area of visible petroleum contamination, measured from test pit and boring logs, was calculated as 48,720 square feet. The average thickness of contaminated soil above the water table is 1.5 feet in contaminated areas. Based on this average thickness, an estimated volume of soil with detectable TPH above the water table was calculated to be 73,080 cubic feet. The mass of TPH-impacted soil was calculated to be 2.297×10^7 kilograms based on an average TPH concentration of 7,000 mg/kg.

This estimate of petroleum-contaminated soils assumes that the TPH analyses (following Method 418.1) is equivalent to actual petroleum hydrocarbon presence. However, Method 418.1 measures total recoverable hydrocarbons and is not representative of true petroleum hydrocarbon

measurement which is a fraction of the recoverable hydrocarbons. Method 418.1 was employed for the analyses based on discussions with a RIDEM representative, as this was the method preferred by the representative. Therefore, it is likely that the volume of petroleum hydrocarbon contaminated soils is less than what was estimated.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The objective of this source removal evaluation is to determine whether site-specific conditions present at OFFTA meet one or more of the eight conditions, as presented in the National Oil and Hazardous Substances Contingency Plan (Title 40, Code of Federal Regulations, Section 300.415), which may result in the need for a removal action to protect public health or welfare, or the environment.

The field investigation included excavating 17 test pits, installing two soil borings and completing the borings as monitoring wells. The test pits were excavated to search for a discrete source of contamination at OFFTA. The test pits were logged and videotaped. Storm (surface) water samples were collected from a storm sewer, sediment samples along the shoreline were collected, and samples were collected from two new and 13 existing monitoring wells. Observations made during the field investigation did not identify a discrete source of contamination that would warrant a source removal action. No underground oil and fuel storage tanks, UST access ports, drums, or ancillary piping associated with USTs as depicted on Public Works Department (PWD) Drawing No. 637871 (1953) were observed.

4.1 SOIL INVESTIGATION

Pesticides/PCBs, SVOCs, Metals and TPH were present throughout the site's subsurface soils. VOCs and Pesticides/PCBs were not detected in concentrations exceeding RIDEM's direct exposure criteria. Three SVOC constituents: benzo(a)pyrene, dibenzo(a,h)anthracene, and 2-methylnaphthalene, TPH, arsenic and lead were detected in concentrations exceeding RIDEM's direct exposure criteria. Compared to the GB leachability criteria established by RIDEM, exceedances for TPH were noted in 7 of 18 subsurface soil samples analyzed. However, all detections occurred between 3 and 11 feet bgs, making exposure unlikely.

The RI report (TRC, 1994) concluded that VOC contamination consisted primarily of petroleum-related aromatic VOCs. As noted in the RI, VOCs in the subsurface soils were present in the central to north-central portions of the site and primarily at the water table. Although fewer VOCs were detected in subsurface soils collected during the Source Removal Evaluation, a similar level of total VOC concentrations was noted in subsurface soils as compared to the RI.

Results of the SVOC analysis conducted during the Source Removal Evaluation are also similar to results detected in subsurface soils collected during the RI. Concentrations in soils appear to be within the same order of magnitude as those detected during the RI. Although SVOCs continue to be prevalent and persistent in subsurface soils across the site, higher concentrations (greater than 20,000 µg/kg) appear to be more centrally located.

Fewer TCL pesticides were detected in the subsurface soils collected during the Source Removal Evaluation than during the RI. The PCB Aroclor 1254 was detected test pit TP-04 (1-2 feet bgs) at a concentration of 120 µg/kg. PCBs were not detected in any other soil samples collected during the Evaluation. The concentration of Aroclor 1254 detected does not exceed the maximum detected concentration (190 ppb) in a subsurface soil sample collected during the RI. Only two PCBs (Aroclor 1254 and Aroclor 1260) were detected in subsurface soils collected during the RI.

TPH analysis was not performed on subsurface soils collected during the RI. However, as indicated in the RI, petroleum contamination appears to be a site-wide concern. Soils with the highest SVOC levels were accompanied by the presence of petroleum odors and/or petroleum-contaminated soils. Past site-related activities were likely a contributing source to the TPH contamination detected in the subsurface soils. While TPH levels were detected in the subsurface soils, none were detected in the groundwater samples. These results, in conjunction with the SVOCs analyses for soils and groundwater, indicate that while petroleum hydrocarbons are present in soils, little or none are partitioning or migrating into groundwater.

Metal analyte levels in subsurface soils were compared with maximum concentrations detected during the RI. Results indicate that except for two samples, all concentrations evaluated during the assessment were within the same order of magnitude as those detected during the RI. Of the two outliers, antimony was detected at a concentration higher than the RI result (160.0 mg/kg versus 6.8 mg/kg, as reported in RI report). The maximum detection for copper was higher than the RI result (2,310 mg/kg versus 321 mg/kg, as reported in RI report).

Results of the Source Removal Evaluation investigation indicate the highest concentrations of metals were typically detected in soils collected at or near the water table. Additionally, it appears that soils with the highest metal concentrations were petroleum impacted or exhibiting petroleum-like odors. Most of these detections were from soils collected in the central portion of the site, from Taylor Drive to the northern portion of Coasters Harbor Island. A potential source of

some of the elevated metals presence may likely be the on-site petroleum-contaminated soils from past fire-fighting activities or from other past site-related activities. Historical documentation, from approximately 1909, indicates that northern portions of Coasters Harbor Island were used as firing ranges and a hospital. Small-arms ammunition typically consists of a brass casing with the firing charge enclosed in a lead bullet. Some types of ammunition, especially military rounds, may have a full-metal jacket composed of copper, brass, or other soft metal. Brass is a metal alloy composed of 60 percent copper and 40 percent zinc. Antimony may also be associated with the lead component found in bullets. However, copper, zinc, and antimony do not exceed the direct exposure criteria limits.

Based on the general findings of a study conducted to determine background levels of priority pollutant metals in Rhode Island soils, arsenic, barium, beryllium, chromium, copper, lead, nickel, and zinc are naturally occurring. Antimony, cadmium, mercury, selenium, silver, and thallium are likely present in subsurface soils as the result of anthropogenic effects (RIDEM). Therefore, the actual contribution of prior site activities to the inorganics detected at the site cannot be definitively differentiated across the site.

Based on visual observations, the concrete debris uncovered in TP-13 and TP-16 does not appear to represent a potential discrete contaminant source. The debris was vertically oriented with soil on both sides. In addition, reinforcing steel was observed protruding from the concrete indicating the original structure probably was demolished. Subsurface soil and soil pore spaces near the water table appeared to be petroleum-contaminated, similar to observations made at TP-13. A subsurface soil sample collected from this test pit was found to have a TPH concentration of 6,400 mg/kg. This concentration appears to be comparable to soils in the central portion of the site.

Contaminant concentrations and distribution in OFFTA soils have not changed significantly as compared to the 1994 data presented in the RI.

A small list of constituents whose concentrations detected during the Source Removal Evaluation exceeded RIDEM's direct exposure criteria are reported in a table included under Appendix B.

4.2 GROUNDWATER INVESTIGATION

Concentrations of TPH and pesticides/PCBs were below detection limits (BDL) for all 15 of the groundwater samples. Two of the fifteen groundwater samples exhibited VOCs, however concentrations did not exceed RIDEM's direct exposure criteria. Three of the fifteen groundwater samples exhibited SVOCs, and metals were present throughout the site's groundwater. There are no criteria for metals or SVOCs in GB aquifers.

During the 1994 RI investigation, groundwater samples were collected using a conventional bailing technique. This technique does not readily allow the collection of groundwater under ambient flow conditions. During the Source Removal Evaluation, groundwater was collected via a low-stress methodology. Samples collected during the RI investigation were more turbid and included a higher concentration of suspended solids then those collected during the Source Removal Evaluation. The different sampling techniques may account for higher concentrations of metals presented in the RI report.

Of the fifteen groundwater samples collected during the Source Removal Evaluation investigation, two had detectable VOC concentrations. These samples were obtained from MW-101 and MW-102. MW-101 contained detectable levels of benzene (8 µg/l) and MW-102 contained detectable levels of both benzene (33 µg/l) and ethylbenzene (38 µg/l). Of the fifteen groundwater samples, three had detectable SVOC concentrations. These samples were obtained from MW-101, MW-102, and MW-11R. Groundwater samples from MW-101, MW-102, and MW-11R had estimated total SVOC concentrations of 375 µg/l, 28 µg/l, and 5 µg/l, respectively. The detected SVOCs are dominated by petrogenic PAHs.

The only VOC detected during the RI was carbon disulfide, which was present in MW-2D at a concentration of 1 ppb. During the RI, SVOCs were detected in nine monitoring wells. Eight of these did not yield samples with detectable concentrations of SVOCs during the Source Removal Evaluation. The maximum estimated concentration of total SVOCs detected during the RI was 131.7 µg/l, which occurred in the sample collected from MW-2S. Comparison of the soils and groundwater data indicates that very little VOCs and SVOCs are partitioning from the soils to groundwater which suggests that the detected petroleum hydrocarbons are not mobile in the environment and are resident primarily in the soils. This interpretations is further supported by the

observation that while there was detectable levels of TPH in the soils, none were detected in any of the groundwater samples collected during this study.

Groundwater samples from four wells, MW-101, MW-102, MW-9R, and MW-6R, were collected for TAL metals analysis after being filtered. Filtered analyses are included in Appendix B and have been labeled with an "F" following the sample number. In the results from both this study and in the RI, the majority of filtered concentrations are lower than their counterpart unfiltered concentrations. The analytical data for the filtered sample and samples acquired through "low flow" procedures are more representative of the mobile fraction of the metals present in groundwater. None of the metal data indicated a source exists at OFFTA. Maximum metals concentrations from this study are generally lower than those presented in the RI, because of sampling protocols.

All groundwater samples analyzed in conjunction with this study lacked detectable quantities of TPH and PCBs. During the RI, only once pesticide, endrin, was detected in groundwater. Endrin was detected during the Source Removal Evaluation in MW-8R at an estimated concentration of 0.05 µg/l.

In summary, the field observations, and analytical data from the RI and the Source Removal Evaluation, indicate that no discrete sources of contamination exist at the site.

4.3 STORMWATER INVESTIGATION

Although a sheen was observed in both catchbasins, concentrations of TPH, VOCs and pesticides/PCBs were below detection limits (BDL) for both of the stormwater samples. Total estimated SVOC concentrations in samples SW-1 and SW-2 were 2 µg/kg and 5.5 µg/kg respectively. There are no RIDEM exposure criteria for stormwater.

During the RI, pesticide compounds were found in both storm water samples. Dieldrin and eldrin were detected in both samples while endosulfan II, endosulfan sulfate, and 4,4-DDT were only detected in the sample from the outfall pipe.

The analysis of storm sewer samples SW-1 and SW-2 did not detect VOC, pesticides/PCB, or TPH contamination. SVOC contamination was detected at levels less than 6 µg/l. At the time of sample

collection, July 1997, the analytical data indicates the storm sewer did not appear to be a significant source of VOC, pesticides/PCB, SVOC, or TPH contamination for Coasters Harbor waters and sediments.

4.4 SHORELINE SEDIMENT INVESTIGATION

The SVOCs exceeding RIDEM's direct exposure criteria were only detected in the marine sediment sample, SS-1. Human exposure to these sediments are probably low since they are submerged during high tide.

Analytical data from marine sediment sample SS-1, approximately 5 feet east of the pipe's center (see Drawing No. 1), indicates a SVOC concentration (47,970 µg/kg) ten times greater than the concentration found at SS-3 (asphalt, 4,710 µg/kg). Determinations as to whether or not the pipe acts as a potential discrete contaminant source could not be made based on the collection of a single sample.

SVOC concentrations were an order of magnitude higher in marine sediment sample SS-1, located adjacent to the pipe located along the shoreline northeast of MW-102, than in any of the other shoreline sediment samples. The weathered asphalt pavement (SS-3) contained levels of SVOCs that approximate 4710 µg/kg. Since shoreline sediment sample SS-4, adjacent to SS-3, lacked detectable SVOC contamination, the analytical data is inconclusive as to whether asphalt pavement is contributing to the contamination of shoreline sediment. SVOC contamination was found away from the zone of weathered asphalt pavement in SS-5. This indicates that some of the SVOC contamination on this site cannot be necessarily explained by proximity to sources of weathered asphalt pavement. PAHs dominate the SVOC contamination within the shoreline sediments off this site.

The TPH content of weathered asphalt pavement along the OFFTA shoreline was estimated at 4,400 mg/kg based on the analyses of shoreline sediment sample SS-3. The OFFTA shoreline samples had TPH levels in the range of 75-200 mg/kg. The TPH concentration in shoreline sediment samples SS-4 and SS-2 were actually lower than in the asphalt-poor control sample, SS-5. Therefore, TPH detection does not indicate direct correlation with the presence or absence of asphalt pavement debris in the immediate vicinity. The pipe adjacent to marine sediment sample SS-1 does not appear to be a source of TPH contamination.

Neither the weathered asphalt pavement nor the sediment directly adjacent to the weathered asphalt pavement is contaminated with pesticides or PCBs. The only shoreline sediment contaminated with pesticides was SS-5, located east of the zone of weathered asphalt pavement debris. Shoreline sediment sample SS-5 was contaminated with 3.6 µg/kg of 4,4'-DDE and 11 µg/kg of 4,4'-DDT.

The sampling and analysis of shoreline sediment samples was conducted to determine if erosion of the asphalt pieces within the shoreline embankment was a contributing source of SVOC constituents detected offshore. Compounds detected in SS-1 (marine sediment sample) were compared to both constituents found in SS-3 (asphalt sample) and the offshore analyses reported in TRC's RI report. There is a good correlation between SS-1 and the offshore compounds reported by TRC. The correlation between SS-1 and SS-3 is not as strong. It appears the asphalt could be a possible, although limited, contributor of SVOCs to the bay. However, several SVOC constituents which were detected in SS-1, were absent in the asphalt sample. An ecological risk assessment is planned which will assess marine sediment contamination offshore of Coasters Harbor Island.

4.5 REMOVAL ACTION EVALUATION

As previously stated, the objective of this source removal evaluation is to determine whether site-specific conditions present at OFFTA meet one or more of the eight conditions, as presented in the National Oil and Hazardous Substances Contingency Plan (Title 40, Code of Federal Regulations, Section 300.415), which may warrant a removal action to protect public health or welfare, or the environment. This section presents the eight conditions and includes a discussion on the applicability of the conditions to observations made at OFFTA.

From Section 300.415:

(2) The following factors shall be considered in determining the appropriateness of a removal action pursuant to this section:

(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants;

Prior to excavation of test pits, the top 12-15 inches of topsoil were removed and containerized. This topsoil was characterized prior to removal from the site and disposal as daily landfill cover. The characterization revealed concentrations of contaminants significantly below RIDEM's direct exposure criteria. Based on observations made during the field investigation and analytical data collected, contamination was present from approximately 2 to 3 feet bgs to the water table. Imminent potential exposure to nearby human populations, animals, or the food chain is not likely.

(ii) Actual or potential contamination of drinking water supplies or sensitive ecosystems;

The groundwater at the site has been classified by RIDEM as class GB, not suitable for public or private drinking water. While VOCs and SVOCs have been detected in soils, only low level of these organic compounds have been detected in groundwater indicating low rate contaminant migration into groundwater. An evaluation of potential impacts to sensitive ecosystems was not performed at this time as an ecological risk assessment would be initiated by the Navy during the next calendar year. The potential impact of site-related contaminants will be more fully assessed under that installation.

(iii) Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release;

No drums, barrels, tanks, or other bulk storage containers, were observed during the field investigation.

(iv) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate;

Prior to excavation of test pits, the top 12-15 inches of topsoil were removed and containerized. This topsoil was characterized prior to removal from the site and disposal as daily landfill cover. The characterization did not reveal levels of contaminants above RIDEM's direct exposure criteria. Elevated chemical levels were detected in samples obtained from between 2 and 10 feet bgs. The top 12 - 15 inches of the excavation were restored with clean imported material.

(v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;

Weather conditions over the past 3 years, since the preparation of the Draft Final RI report, have not caused contaminants to migrate or be released as site conditions and features have remained unchanged. The site is well compacted, covered with top soil, vegetated, and is regularly maintained by landscapers so that effects of erosion or runoff would not likely foster contaminant migration.

(vi) Threat of fire or explosion;

No observations were made during the field investigation that would indicate a threat of fire or explosion due to subsurface contaminants.

(vii) The availability of other appropriate federal or state response mechanisms to respond to the release;

The Source Removal Evaluation investigation did not identify any discrete contaminant sources. While there is pervasive petroleum hydrocarbon contamination in the subsurface soils, these do not appear to be migrating. The Navy is currently engaged in completing the remedial investigation and feasibility study for site 09 under the Navy's Installation Restoration Program (IRP). The IRP is the mechanism by which the Navy will address the protection of human health and the environment through appropriate future remedial actions, or other response actions (either time-critical or non-time-critical), if such conditions are identified.

An ecological risk assessment will be conducted under another CTO to assess chemical presence in the marine sediments and potential risks to ecological receptors.

(viii) Other situations or factors that may pose threats to public health or welfare or the environment.

Observations made during the field investigation, and the evaluation of the collected data, did not unveil any situations or factors that would pose imminent threats to public health or welfare, or the environment.

Based on the above evaluations, a non-time critical removal action is not warranted at the former OFFTA site.

4.6 SUMMARY AND RECOMMENDATIONS

The analytical data collected during the Source Removal Evaluation was compared to the RIDEM Remediation Regulations and the data presented in the RI. This comparison along with field observations was utilized to determine if a discrete source of contamination exists at OFFTA, mobility of contaminants, threats to human health, and the need for a removal action. Evaluation of the data indicates that while both soil and groundwater contamination are ubiquitous across the site, human health would not likely be affected from direct exposures, and minimal migration of original compounds to groundwater is occurring. A continuing source of contamination was not identified by the Source Removal Evaluation.

Section 4.5 compared site-specific conditions present at OFFTA to the eight conditions, as presented in the National Oil and Hazardous Substances Contingency Plan (Title 40, Code of Federal Regulations, Section 300.415), which may warrant a removal action to protect public health or welfare, or the environment. An evaluation of the eight conditions concluded that a non-time critical removal action is not warranted at OFFTA.

Additional work may be needed to determine the source of the SVOCs in the marine sediment sample (SS-1) adjacent to the cast iron pipe. Determinations as to whether or not the pipe acts as a potential discrete contaminate source could not be made based on the collection of a single sample. Further investigation is required to determine if the cast iron pipe should be removed or abandoned. This additional assessment may be incorporated into the field investigation activities planned as part of the proposed Ecological Risk Assessment.

REFERENCES

REFERENCES

B&R Environmental, May 1997, Draft Work Plan for Source Removal Evaluation, Contract No. N62472-90-D-1298

NETC Public Works Dept., Various dates, Map Numbers 637871, 637869, 12554-132.

Rhode Island Department of Environmental Management. 1992. "Rules and Regulations for Groundwater Quality", Regulation 12-100-006. May, amended August 1996.

Rhode Island Department of Environmental Management. 1993. "Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases," Regulation No. DEM-DSR-01-93. March 31, amended August 1996.

Rhode Island Department of Environmental Management. No Year. "Background Levels of Priority Pollutant Metals in Rhode Island Soils".

TRC Environmental Corporation, August 1994, Draft Final Old Fire Fighting Training Area Remedial Investigation Report, Contract No. N62472-86-C-1282

APPENDIX A

DRAWINGS

PNT#	NORTHING	EASTING	OG	RIM	PVC	DESC
1164	156995.1519	547434.8142	8.9	9.14	8.58	MW-2D
1163	156991.3256	547441.2658	8.9	9.12	8.84	MW-2S
1064	156913.5180	547289.6223	9.8	10.14	9.97	MW-3S
1055	156944.0531	546995.6430	7.6	7.91	7.65	MW-4S
1120	156654.5000	547365.5601	12.3	12.70	12.27	MW-5S
1215	156497.9907	547483.6432	13.6	13.66	13.50	MW-6S
1060	156781.0643	547262.5864	10.8	10.97	10.38	MW-7S
1174	156898.8414	547579.6782	9.9	10.42	10.24	MW-10S
1068	157054.8297	547198.5865	7.6	7.91	7.77	MW-11S
1205	156789.7248	547687.4571	11.1	11.55	11.35	MW-1R
1213	156504.6920	547504.2921	13.6	13.96	13.45	MW-6R
1237	156749.5334	547534.4637	12.5	12.83	12.19	MW-8R
1189	156839.5271	547435.8971	10.9	11.76	11.19	MW-9R
1069	157066.2195	547214.9006	7.6	7.64	7.42	MW-11R
1057	156833.2204	547162.0193	9.4	9.50	9.19	MW-101
1094	157032.4634	547363.1827	8.3	8.63	8.47	MW-102

[T-4]
RIM=8.69
INV= 0.56
[T-3]
RIM=10.25
INV= 0.07
[T-2]
RIM=10.48
INV= -0.11
[T-1A]
RIM=11.42
INV= -0.26
[T-1]
RIM=12.75
INV= -0.45

[A-1]
RIM=13.18
INV= 4.05
[A-2]
RIM=12.52
INV= 4.87
[A-3]
RIM=12.27
(FULL) TOP OF DIRT= 7.8

MW-102 Depth = 6-8 ft	
TOTAL VOCs (µg/kg)	730 J
TOTAL SVOCs (µg/kg)	62920 J
TOTAL PEST/PCBs (µg/kg)	ND
TPH (mg/kg)	8200 J

TP-11* Depth = 5-6 ft	
TOTAL VOCs (µg/kg)	1230 J
TOTAL SVOCs (µg/kg)	20525 J**
TOTAL PEST/PCBs (µg/kg)	11 **
TPH (mg/kg)	6650 J

TP-15 Depth = 5-6 ft	
TOTAL VOCs (µg/kg)	ND
TOTAL SVOCs (µg/kg)	41910 J
TOTAL PEST/PCBs (µg/kg)	3
TPH (mg/kg)	21000 J

TP-13 Depth = 6-7 ft	
TOTAL VOCs (µg/kg)	ND
TOTAL SVOCs (µg/kg)	2170 J
TOTAL PEST/PCBs (µg/kg)	ND
TPH (mg/kg)	7400 J

TP-16 Depth = 10-11 ft	
TOTAL VOCs (µg/kg)	ND
TOTAL SVOCs (µg/kg)	2510 J
TOTAL PEST/PCBs (µg/kg)	ND
TPH (mg/kg)	6400 J

TP-14* Depth = 3-4 ft	
TOTAL VOCs (µg/kg)	ND
TOTAL SVOCs (µg/kg)	1382 J**
TOTAL PEST/PCBs (µg/kg)	4.9 J
TPH (mg/kg)	3750 J

TP-12 Depth = 4-5 ft	
TOTAL VOCs (µg/kg)	ND
TOTAL SVOCs (µg/kg)	11080 J
TOTAL PEST/PCBs (µg/kg)	ND
TPH (mg/kg)	4100 J

TP-17* Depth = 8-9 ft	
TOTAL VOCs (µg/kg)	ND
TOTAL SVOCs (µg/kg)	1215 **
TOTAL PEST/PCBs (µg/kg)	ND
TPH (mg/kg)	195 J

MW-101 Depth = 6-8 ft	
TOTAL VOCs (µg/kg)	ND
TOTAL SVOCs (µg/kg)	27130 J
TOTAL PEST/PCBs (µg/kg)	ND
TPH (mg/kg)	1900 J

TP-08 Depth = 3-4 ft	
TOTAL VOCs (µg/kg)	98
TOTAL SVOCs (µg/kg)	1100 J
TOTAL PEST/PCBs (µg/kg)	2.1 J
TPH (mg/kg)	ND

TP-07 Depth = 7-8 ft	
TOTAL VOCs (µg/kg)	ND
TOTAL SVOCs (µg/kg)	3710 J
TOTAL PEST/PCBs (µg/kg)	ND
TPH (mg/kg)	ND

TP-06 Depth = 6-7 ft	
TOTAL VOCs (µg/kg)	ND
TOTAL SVOCs (µg/kg)	7050 J
TOTAL PEST/PCBs (µg/kg)	ND
TPH (mg/kg)	130 J

TP-02 Depth = 2-3 ft	
TOTAL VOCs (µg/kg)	ND
TOTAL SVOCs (µg/kg)	ND
TOTAL PEST/PCBs (µg/kg)	1.8 J
TPH (mg/kg)	140 J

TP-05 Depth = 7-8 ft	
TOTAL VOCs (µg/kg)	ND
TOTAL SVOCs (µg/kg)	10360 J
TOTAL PEST/PCBs (µg/kg)	ND
TPH (mg/kg)	ND

TP-04 Depth = 1-2 ft	
TOTAL VOCs (µg/kg)	ND
TOTAL SVOCs (µg/kg)	5450 J
TOTAL PEST/PCBs (µg/kg)	258 J
TPH (mg/kg)	340 J

NARRAGANSETT BAY
COASTERS HARBOR
BASEBALL FIELD
TAYLOR DRIVE
BLDG 144
BLDG 158
OPEN PAVILION
APPROXIMATE CENTRAL MOUND AREA
STORM SEWER OUTFALL INV= 2.49 24" RCP
EXPOSED 8" CI PIPE (APPROXIMATE LOCATION) SS-1
SS-2
(APPROXIMATE LOCATION) SS-3 SS-4
BURIED FOUNDATION
SW-1 RIM= 10.22 INV= 3.99
SW-2 RIM CB=10.80 INV= 4.78 INV= 4.88(SW)
24" RCP
6" METAL
FLOW DIRECTION
TOP OF SLOPE
EDGE OF PAVEMENT
POLE# 10/T311
POLE# 9/T312
POLE# 8/T31
POLE# 7/T126
POLE# 6/T314
POLE# 5/T127
N 156790.4111 E 547030.5998 PK NAIL [151] ELEVATION= 8.72
RIM= 8.49 INV= 5.73(S) INV= 5.81(W)
RIM= 8.77 INV= 5.53(S) INV= 5.62(N)
N79°16'04"W (723.64' TRAVERSE LINE)
2" METAL PIPE
2"& 3" METAL PIPE
KATY FIELD SIGN
WALK
N 156655.6556 E 547741.5320 DRILL HOLE [150] ELEVATION= 12.86
N 157080 E 546880
N 157080 E 547840
N 156600 E 546880
N 156600 E 547840

MW-1S MW-1R MW-2S MW-2D MW-3S MW-4S MW-5S MW-6S MW-6R MW-7S MW-8R MW-9R MW-10S MW-11S MW-101 MW-102

TP-01 TP-02 TP-03 TP-04 TP-05 TP-06 TP-07 TP-08 TP-11 TP-12 TP-13 TP-14 TP-15 TP-16 TP-17

N

W E

GRAPHIC SCALE
40' 0' 40' 80'
1 INCH = 40 FEET

LEGEND

- VC VITRIFIED CLAY
- CI CAST IRON
- SS SHORE LINE SEDIMENT SAMPLE
- TP TEST PIT
- MW MONITOR WELL
- SW STORM SEWER OUTFALL SAMPLE LOCATION
- CB CATCH BASIN
- DMH DRAIN MANHOLE
- EMH ELECTRIC MANHOLE
- CMH COMMUNICATIONS MANHOLE
- SMH SANITARY SEWER MANHOLE
- TMH TELEPHONE MANHOLE
- MH MANHOLE
- WELL
- HH HANDHOLE/ELECTRIC PLUGS
- CP CONCRETE PAD
- GV GAS VALVE
- GAS SHUT OFF VALVE
- WG WATERGATE
- WV WATER SHUT OFF VALVE
- FH FIRE HYDRANT
- MONITORING WELL
- TEST PIT
- LIGHT POLE
- POWER POLE
- GUY WIRE
- SIGN
- POST
- TREE
- FENCE
- PEST PESTICIDES
- µg/kg MICROGRAMS PER KILOGRAM
- mg/kg MILLIGRAMS PER KILOGRAM
- J ESTIMATED VALUE
- ND NOT DETECTED
- ** WHEN A DETECTED VALUE IS AVERAGED WITH A NON-DETECT, ONE HALF THE DETECTION LIMIT WAS USED FOR THE NON-DETECT VALUE
- * THE DATA REPRESENTS AN AVERAGE OF THE SAMPLE AND ITS FIELD DUPLICATE

APPROXIMATE LOCATION OF SS-5

REVISIONS	
DATE	REVISED
08-07-97	24" PIPE LOCATION
10-15-97	REDLINE EDITS

NOTES:

1) THE "PROCEDURAL AND TECHNICAL STANDARDS FOR THE PRACTICE OF LAND SURVEYING IN THE STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS" PREPARED BY THE RHODE ISLAND SOCIETY OF PROFESSIONAL LAND SURVEYORS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS DEFINES A CLASS III DATA ACCUMULATION SURVEY AS: "SURVEYS DESIGNED TO COLLECT AND REPORT DATA, TYPICALLY FOR THE PURPOSE OF EVALUATION OF EXISTING CONDITIONS AND/OR DESIGN OF FUTURE IMPROVEMENTS SUCH SURVEYS AND PLANS TEND TO MEASURE AND SHOW THE RELATIVE POSITIONS OR LOCATIONS OF PHYSICAL FEATURES TO A STATED GRAPHICAL SCALE WHICH IS SUITED TO THE PURPOSE FOR WHICH THE SURVEY IS TO BE USED. THIS CLASSIFICATION INCLUDES TOPOGRAPHIC SURVEYS, PHOTOGRAMMETRIC SURVEYS, SITE PLANS, UTILITY PLANS, ETC TO THE EXTENT THAT PROPERTY LINES ARE REFLECTED ON SUCH PLANS, THEY ARE TO BE REGARDED AS PICTORIAL ONLY, UNLESS SUCH BOUNDARIES ARE ALSO CERTIFIED TO A CLASS I, CLASS II OR CLASS V STANDARD."

2) ELEVATIONS ON THIS PLAT ARE BASED ON NAVAL BASE MEAN LOW WATER FOR NEWPORT

ELEVATIONS ARE BASED ON NGVD MONUMENTS (DATUM OF 1929) ADJUSTED TO THE NAVAL BASE MEAN LOW WATER (MLW)

3) COORDINATES ARE BASED ON THE NORTH AMERICAN 1927 DATUM, RHODE ISLAND STATE PLANE COORDINATES, TRANSVERSE MERCATOR PROJECTION (NAD 27)

4) CENTRAL MOUND WAS NOT SURVEYED DURING THIS EFFORT AND IS NOT SHOWN ON THE TOPO APPROX AREA OF MOUND FROM TRC ENV. CORP., DRAFT FINAL RI REPORT, AUG, 1994

5) ACTUAL SOIL SAMPLING POINT SS-5 WAS NOT SURVEYED IT'S APPROXIMATE LOCATION IS SHOWN ON THE DRAWING

THIS SURVEY AND PLAN CONFORM TO A CLASS III STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS

DRAWN BY	D.W. MACDOUGALL
PREPARED BY	J. RUDDERS
CHECKED BY	L. CHU for LC
PROJECT MANAGER	D. CONANT
PROGRAM MANAGER	J. TREPANOWSKI

TITLE: SUBSURFACE SOIL ANALYTICAL RESULTS TPH AND TOTAL VOCs, SVOCs, AND PEST/PCBs OLD FIRE FIGHTING TRAINING AREA NEWPORT, RHODE ISLAND

SOURCE: BASE PLAN BY GUERRIERE & HALNON, INC., JULY 1997

SCALE: 1" = 40' | DATE: NOVEMBER 10, 1997 | PROJ. NO: 7578 CTO: 288

DRAWING NO: 2 | ACFILE NAME: \DWG\NETC\FIREFITE\SOILRES.DWG | REV: 0

Brown & Root Environmental
55 JONSPIN ROAD
WILMINGTON, MASSACHUSETTS 01887
(978)658-7899

PNT#	NORTHING	EASTING	OG	RIM	PVC	DESC.
1164	156995 1519	547434 8142	8 9	9 14	8.58	MW-2D
1163	156991 3256	547441 2658	8 9	9 12	8 84	MW-2S
1064	156913 5180	547289 6223	9 8	10 14	9 97	MW-3S
1055	156944 0531	546995 6430	7 6	7 91	7 65	MW-4S
1120	156654 5000	547365 5601	12 3	12 70	12 27	MW-5S
1215	156497 9907	547483.6432	13 6	13 66	13 50	MW-6S
1060	156781 9643	547262.5864	10 8	10 97	10 38	MW-7S
1174	156898 8414	547579 6782	9 9	10 42	10 24	MW-10S
1068	157054 8297	547198 5865	7 6	7 91	7 77	MW-11S
1205	156789 7248	547687 4571	11.1	11 55	11 35	MW-1R
1213	156504 6920	547504.2921	13.6	13 96	13.45	MW-6R
1237	156749 5334	547534 4637	12.5	12 83	12.19	MW-8R
1189	156839 5271	547435.8971	10 9	11 76	11 19	MW-9R
1069	157066 2195	547214 9006	7 6	7 64	7 42	MW-11R
1057	156833 2204	547162 0193	9 4	9 50	9 19	MW-101
1094	157032.4634	547363 1827	8 3	8 63	8 47	MW-102

[T-4]
RIM=8 69
INV= 0 56
[T-3]
RIM=10 25
INV= 0 07
[T-2]
RIM=10.48
INV= -0 11
[T-1A]
RIM=11 42
INV= -0 26
[T-1]
RIM=12 75
INV= -0 45

[A-1]
RIM=13 18
INV= 4 05
[A-2]
RIM=12 52
INV= 4 87
[A-3]
RIM=12 27
(FULL) TOP OF DIRT= 7 8

N 157080
E 546880

MW-11S	
ARSENIC (µg/l)	ND
BARIUM (µg/l)	112
CADMIUM (µg/l)	ND
CHROMIUM(µg/l)	12 4 J
LEAD(µg/l)	7 9 J
MERCURY (µg/l)	ND
SELENIUM (µg/l)	ND
SILVER (µg/l)	1 9 J

MW-11R	
ARSENIC (µg/l)	ND
BARIUM (µg/l)	5 3
CADMIUM (µg/l)	ND
CHROMIUM(µg/l)	39 9
LEAD(µg/l)	ND
MERCURY (µg/l)	ND
SELENIUM (µg/l)	ND
SILVER (µg/l)	0 82 J

MW-3S	
ARSENIC (µg/l)	49 8
BARIUM (µg/l)	93 2
CADMIUM (µg/l)	3 4 J
CHROMIUM(µg/l)	37 8
LEAD(µg/l)	207 J
MERCURY (µg/l)	0.24
SELENIUM (µg/l)	ND
SILVER (µg/l)	ND

MW-2D	
ARSENIC (µg/l)	ND
BARIUM (µg/l)	10 9
CADMIUM (µg/l)	ND
CHROMIUM(µg/l)	7 3
LEAD(µg/l)	5 0 J
MERCURY (µg/l)	ND
SELENIUM (µg/l)	ND
SILVER (µg/l)	ND

MW-102	
ARSENIC (µg/l)	ND
BARIUM (µg/l)	390
CADMIUM (µg/l)	ND
CHROMIUM(µg/l)	19 8
LEAD(µg/l)	27 6 J
MERCURY (µg/l)	0 15 J
SELENIUM (µg/l)	ND
SILVER (µg/l)	ND

MW-2S	
ARSENIC (µg/l)	ND
BARIUM (µg/l)	183
CADMIUM (µg/l)	2 4 J
CHROMIUM(µg/l)	3 6 J
LEAD(µg/l)	19 4 J
MERCURY (µg/l)	0 02 J
SELENIUM (µg/l)	ND
SILVER (µg/l)	ND

MW-10S	
ARSENIC (µg/l)	ND
BARIUM (µg/l)	60
CADMIUM (µg/l)	ND
CHROMIUM(µg/l)	10 8 J
LEAD(µg/l)	8 7 J
MERCURY (µg/l)	ND
SELENIUM (µg/l)	ND
SILVER (µg/l)	ND

MW-4S	
ARSENIC (µg/l)	ND
BARIUM (µg/l)	8 1
CADMIUM (µg/l)	ND
CHROMIUM(µg/l)	5 3
LEAD(µg/l)	2.5 J
MERCURY (µg/l)	ND
SELENIUM (µg/l)	ND
SILVER (µg/l)	ND

MW-101	
ARSENIC (µg/l)	44 5
BARIUM (µg/l)	35 3
CADMIUM (µg/l)	ND
CHROMIUM(µg/l)	3 2
LEAD(µg/l)	ND
MERCURY (µg/l)	ND
SELENIUM (µg/l)	ND
SILVER (µg/l)	ND

MW-9R*	
ARSENIC (µg/l)	ND
BARIUM (µg/l)	ND
CADMIUM (µg/l)	ND
CHROMIUM(µg/l)	ND
LEAD(µg/l)	ND
MERCURY (µg/l)	ND
SELENIUM (µg/l)	ND
SILVER (µg/l)	ND

MW-1R	
ARSENIC (µg/l)	ND
BARIUM (µg/l)	13.9
CADMIUM (µg/l)	ND
CHROMIUM(µg/l)	33 2
LEAD(µg/l)	1 6 J
MERCURY (µg/l)	ND
SELENIUM (µg/l)	ND
SILVER (µg/l)	ND

MW-8R	
ARSENIC (µg/l)	ND
BARIUM (µg/l)	11 5
CADMIUM (µg/l)	ND
CHROMIUM(µg/l)	15 8
LEAD(µg/l)	1 7 J
MERCURY (µg/l)	ND
SELENIUM (µg/l)	ND
SILVER (µg/l)	ND

MW-7S	
ARSENIC (µg/l)	ND
BARIUM (µg/l)	23 2
CADMIUM (µg/l)	2.9
CHROMIUM(µg/l)	7 0
LEAD(µg/l)	9 0 J
MERCURY (µg/l)	ND
SELENIUM (µg/l)	ND
SILVER (µg/l)	ND

MW-5S	
ARSENIC (µg/l)	ND
BARIUM (µg/l)	12 2
CADMIUM (µg/l)	ND
CHROMIUM(µg/l)	15 6
LEAD(µg/l)	ND
MERCURY (µg/l)	ND
SELENIUM (µg/l)	ND
SILVER (µg/l)	ND

MW-6R	
ARSENIC (µg/l)	ND
BARIUM (µg/l)	16 1
CADMIUM (µg/l)	ND
CHROMIUM(µg/l)	12 1
LEAD(µg/l)	ND
MERCURY (µg/l)	ND
SELENIUM (µg/l)	ND
SILVER (µg/l)	ND

NARRAGANSETT BAY
COASTERS HARBOR
BASEBALL FIELD
APPROXIMATE CENTRAL MOUND AREA
TAYLOR DRIVE
BLDG 144
BLDG 158
OPEN PAVILION
STORM SEWER OUTFALL
INV= 2 49
24" RCP
EXPOSED 8" CI PIPE
(APPROXIMATE LOCATION)
SS-1
SS-2
SS-3
SS-4
BURIED FOUNDATION
TOP OF SLOPE
EDGE OF PAVEMENT
FLOW DIRECTION
6" METAL
24" RCP
SW-1
RIM= 10 22
INV= 3 99
SW-2
RIM CB=10 80
INV= 4 78
INV= 4 88(SW)
N 156790 4111
E 547030 5998
PK NAIL [151]
ELEVATION= 8 72
RIM= 8 77
INV= 5 53(S)
INV= 5 62(N)
RIM= 8.49
INV=5.73(S)
INV= 5 81(W)
POLE# 10/T311
POLE# 9/T312
POLE# 8/T31
POLE# 7/T126
POLE# 6/T314
POLE# 5/T127
2" METAL PIPE
2"& 3" METAL PIPE
N79°16'04"W
(723.64' TRAVERSE LINE)
N 156655 6556
E 547741 5820
DRILL HOLE [150]
ELEVATION= 12 86
N 156600
E 546880
N 157080
E 547840
N 156600
E 547840

LEGEND

- VC VITRIFIED CLAY
- CI CAST IRON
- SS SHORE LINE SEDIMENT SAMPLE
- TP TEST PIT
- MW MONITOR WELL
- SW STORM SEWER OUTFALL SAMPLE LOCATION
- CATCH BASIN
- DRAIN MANHOLE
- ELECTRIC MANHOLE
- COMMUNICATIONS MANHOLE
- SANITARY SEWER MANHOLE
- TELEPHONE MANHOLE
- MANHOLE
- WELL
- HANDHOLE/ELECTRIC PLUGS
- CP CONCRETE PAD
- GAS VALVE
- GAS SHUT OFF VALVE
- WATERGATE
- WATER SHUT OFF VALVE
- FIRE HYDRANT
- MONITORING WELL
- TEST PIT
- LIGHT POLE
- POWER POLE
- GUY WIRE
- SIGN
- POST
- TREE
- FENCE
- µg/l MICROGRAMS PER LITER
- J ESTIMATED VALUE
- ND NOT DETECTED
- * THE DATA REPRESENTS AN AVERAGE OF THE SAMPLE AND ITS FIELD DUPLICATE.

◉ APPROXIMATE LOCATION OF SS-5

GRAPHIC SCALE
40' 0' 40' 80'
1 INCH = 40 FEET

N
W E

REVISIONS	
DATE	REVISED
08-07-97	24" PIPE LOCATION
10-15-97	REDLINE EDITS

NOTES

1) THE "PROCEDURAL AND TECHNICAL STANDARDS FOR THE PRACTICE OF LAND SURVEYING IN THE STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS" PREPARED BY THE RHODE ISLAND SOCIETY OF PROFESSIONAL LAND SURVEYORS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS DEFINES A CLASS III DATA ACCUMULATION SURVEY AS "SURVEYS DESIGNED TO COLLECT AND REPORT DATA, TYPICALLY FOR THE PURPOSE OF EVALUATION OF EXISTING CONDITIONS AND/OR DESIGN OF FUTURE IMPROVEMENTS. SUCH SURVEYS AND PLANS TEND TO MEASURE AND SHOW THE RELATIVE POSITIONS OR LOCATIONS OF PHYSICAL FEATURES TO A STATED GRAPHICAL SCALE WHICH IS SUITED TO THE PURPOSE FOR WHICH THE SURVEY IS TO BE USED. THIS CLASSIFICATION INCLUDES TOPOGRAPHIC SURVEYS, PHOTOGRAMMETRIC SURVEYS, SITE PLANS, UTILITY PLANS, ETC TO THE EXTENT THAT PROPERTY LINES ARE REFLECTED ON SUCH PLANS, THEY ARE TO BE REGARDED AS PICTORIAL ONLY, UNLESS SUCH BOUNDARIES ARE ALSO CERTIFIED TO A CLASS I, CLASS II OR CLASS V STANDARD "

2) ELEVATIONS ON THIS PLAT ARE BASED ON NAVAL BASE MEAN LOW WATER FOR NEWPORT

ELEVATIONS ARE BASED ON NGVD MONUMENTS (DATUM OF 1929) ADJUSTED TO THE NAVAL BASE MEAN LOW WATER (MLW)

3) COORDINATES ARE BASED ON THE NORTH AMERICAN 1927 DATUM, RHODE ISLAND STATE PLANE COORDINATES, TRANSVERSE MERCATOR PROJECTION. (NAD 27)

4) CENTRAL MOUND WAS NOT SURVEYED DURING THIS EFFORT AND IS NOT SHOWN ON THE TOPO APPROX AREA OF MOUND FROM TRC ENV CORP., DRAFT FINAL RI REPORT, AUG, 1994

5) ACTUAL SOIL SAMPLING POINT SS-5 WAS NOT SURVEYED. IT'S APPROXIMATE LOCATION IS SHOWN ON THE DRAWING.

THIS SURVEY AND PLAN CONFORM TO A CLASS III STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS

DRAWN BY D.W. MACDOUGALL
PREPARED BY: J. RUDDERS
CHECKED BY: L. CHU
PROJECT MANAGER: D. CONAN
PROGRAM MANAGER: J. TREPANOWSKI

TITLE: GROUNDWATER ANALYTICAL RESULTS SELECT METALS OLD FIRE FIGHTING TRAINING AREA NEWPORT, RHODE ISLAND

SOURCE: BASE PLAN BY GUERRIERE & HALNON, INC., JULY 1997
SCALE: 1" = 40'
DATE: NOVEMBER 10, 1997
PROJ NO.: 7578 CTO: 288
DRAWING NO: 6
ACFILE NAME: \DWG\NETC\FIREFITE\GWMETRES.DWG
REV: 0

Brown & Root Environmental
55 JONSPIN ROAD
WILMINGTON, MASSACHUSETTS 01887
(978)658-7899

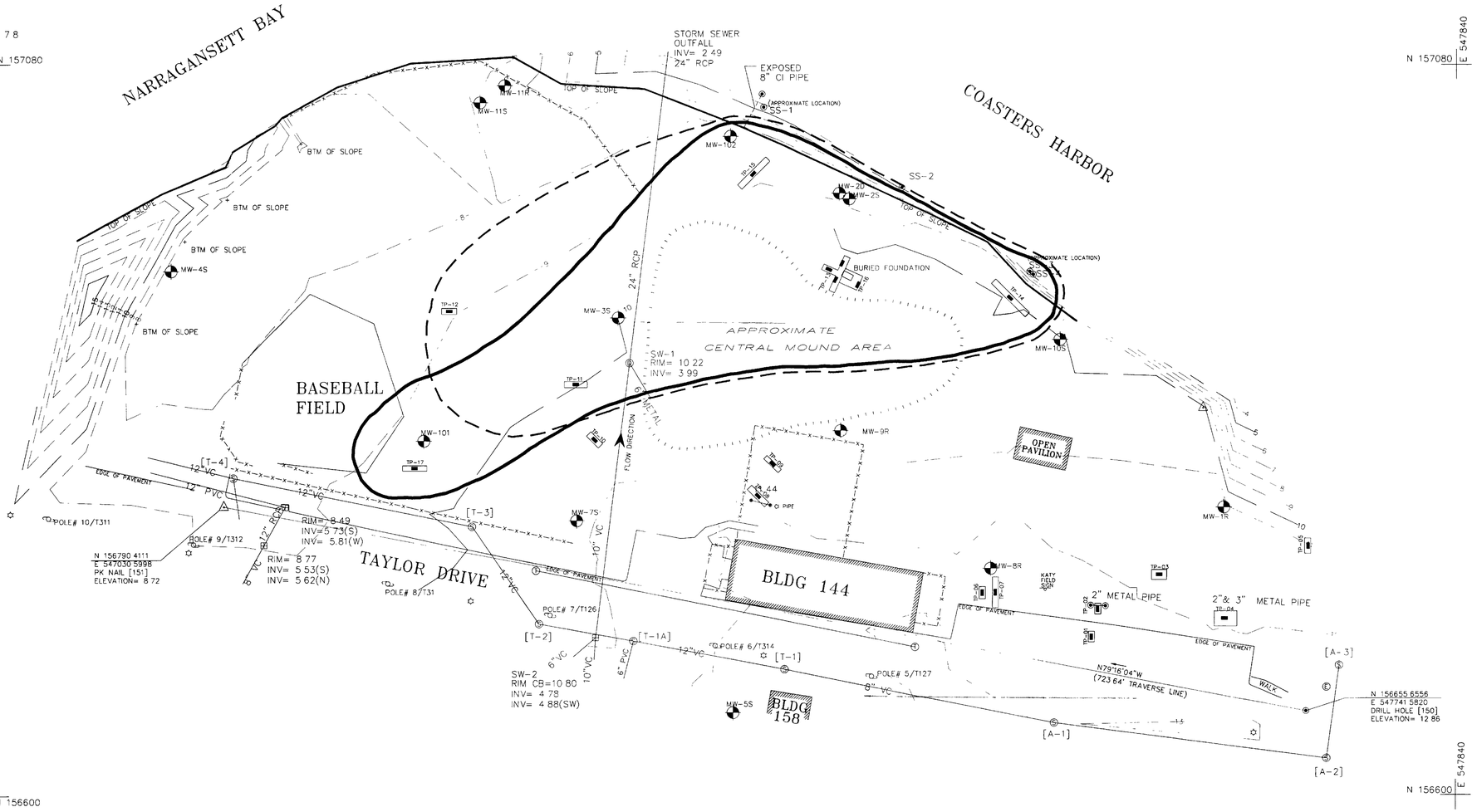
PNT#	NORTHING	EASTING	OG	RIM	PVC	DESC.
1164	156995 1519	547434 8142	8 9	9 14	8 58	MW-2D
1163	156991 3256	547441.2658	8 9	9 12	8 84	MW-2S
1064	156913.5180	547289 6223	9 8	10 14	9 97	MW-3S
1055	156944 0531	546995 6430	7 6	7 91	7 65	MW-4S
1120	156654 5000	547365 5601	12 3	12 70	12 27	MW-5S
1215	156497 9907	547483 6432	13 6	13 66	13 50	MW-6S
1060	156781 0643	547262 5864	10 8	10 97	10 38	MW-7S
1174	156898 8414	547579.6782	9 9	10.42	10.24	MW-10S
1068	157054.8297	547198.5865	7 6	7.91	7 77	MW-11S
1205	156789 7248	547687 4571	11 1	11 55	11 35	MW-1R
1213	156504.6920	547504 2921	13 6	13 96	13 45	MW-6R
1237	156749 5334	547534 4637	12 5	12 83	12 19	MW-8R
1189	156839 5271	547435 8971	10 9	11 76	11 19	MW-9R
1069	157066 2195	547214 9006	7 6	7 64	7 42	MW-11R
1057	156833 2204	547162 0193	9 4	9 50	9 19	MW-101
1094	157032.4634	547363.1827	8 3	8 63	8 47	MW-102

[T-4]
RIM=8 69
INV= 0 56
[T-3]
RIM=10 25
INV= 0 07
[T-2]
RIM=10.48
INV= -0 11
[T-1A]
RIM=11 42
INV= -0 26
[T-1]
RIM=12 75
INV= -0 45

[A-1]
RIM=13.18
INV= 4 05
[A-2]
RIM=12 52
INV= 4 87
[A-3]
RIM=12 27
(FULL) TOP OF DIRT= 7 8

N 157080
E 546880

N 157080 E 547840



LEGEND

- VC VITRIFIED CLAY
- CI CAST IRON
- SS SHORE LINE SEDIMENT SAMPLE
- TP TEST PIT
- MW MONITOR WELL
- SW STORM SEWER OUTFALL SAMPLE LOCATION
- CATCH BASIN
- DRAIN MANHOLE
- ELECTRIC MANHOLE
- COMMUNICATIONS MANHOLE
- SANITARY SEWER MANHOLE
- TELEPHONE MANHOLE
- MANHOLE
- WELL
- HANDHOLE/ELECTRIC PLUGS
- CP CONCRETE PAD
- GAS VALVE
- GAS SHUT OFF VALVE
- WATERGATE
- WATER SHUT OFF VALVE
- FIRE HYDRANT
- MONITORING WELL
- TEST PIT
- LIGHT POLE
- POWER POLE
- GUY WIRE
- SIGN
- POST
- TREE
- FENCE
- ESTIMATED BOUNDARY OF VISIBLE PETROLEUM PRESENCE IN SOILS
- ESTIMATED BOUNDARY OF TPH SOIL CONTAMINATION > 2500 mg/kg

GRAPHIC SCALE
40' 0' 40' 80'
1 INCH = 40 FEET

N
W E

REVISIONS	
DATE	REVISED
08-07-97	24" PIPE LOCATION
10-15-97	REDLINE EDITS

NOTES

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4) CENTRAL MOUND WAS NOT SURVEYED DURING THIS EFFORT AND IS NOT SHOWN ON THE TOPO APPROX. AREA OF MOUND FROM TRC ENV. CORP., DRAFT FINAL RI REPORT, AUG , 1994.

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THIS SURVEY AND PLAN CONFORM TO A CLASS III STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS

DRAWN BY D.W. MACDOUGALL DWM	TITLE	
PREPARED BY J. RUDDERS JCR	OBSERVED PETROLEUM CONTAMINATION OLD FIRE FIGHTING TRAINING AREA NETC, NEWPORT, RHODE ISLAND	
CHECKED BY L. CHU DTC for LC	SOURCE BASE PLAN BY GJERRIERE & HALNON, INC., JULY 1997	
	SCALE 1" = 40'	DATE NOVEMBER 10, 1997
	PROJ NO 7578 CTO: 288	
PROJECT MANAGER: D. CONAN DTC	DRAWING NO 4	ACFILE NAME \DWG\NETC\FIREFITE\BOUNDARY.DWG
PROGRAM MANAGER: J. TREPANOWSKI		REV. 0

Brown & Root Environmental
55 JONSPIN ROAD
WILMINGTON, MASSACHUSETTS 01887
(978)658-7899

PNT#	NORTHING	EASTING	OG	RIM	PVC	DESC
1164	156995 1519	547434 8142	8 9	9 14	8 58	MW-2D
1163	156991.3256	547441 2658	8.9	9.12	8 84	MW-2S
1064	156913.5180	547289 6223	9 8	10 14	9.97	MW-3S
1055	156944.0531	546995 6430	7 6	7 91	7.65	MW-4S
1120	156654 5000	547365 5601	12 3	12 70	12.27	MW-5S
1215	156497.9907	547483 6432	13 6	13 66	13 50	MW-6S
1060	156781.0643	547262 5864	10.8	10 97	10 38	MW-7S
1174	156898 8414	547579 6782	9 9	10 42	10 24	MW-10S
1068	157054.8297	547198 5865	7 6	7 91	7.77	MW-11S
1205	156789 7248	547687 4571	11 1	11 55	11.35	MW-1R
1213	156504 6920	547504 2921	13 6	13 96	13 45	MW-6R
1237	156749.5334	547534 4637	12 5	12.83	12 19	MW-8R
1189	156839 5271	547435 8971	10 9	11 76	11 19	MW-9R
1069	157066.2195	547214 9006	7 6	7.64	7 42	MW-11R
1057	156833 2204	547162 0193	9.4	9 50	9 19	MW-101
1094	157032 4634	547363 1827	8 3	8 63	8 47	MW-102

[T-4]
RIM=8 69
INV= 0 56

[T-3]
RIM=10 25
INV= 0 07

[T-2]
RIM=10 48
INV= -0 11

[T-1A]
RIM=11 42
INV= -0 26

[T-1]
RIM=12 75
INV= -0 45

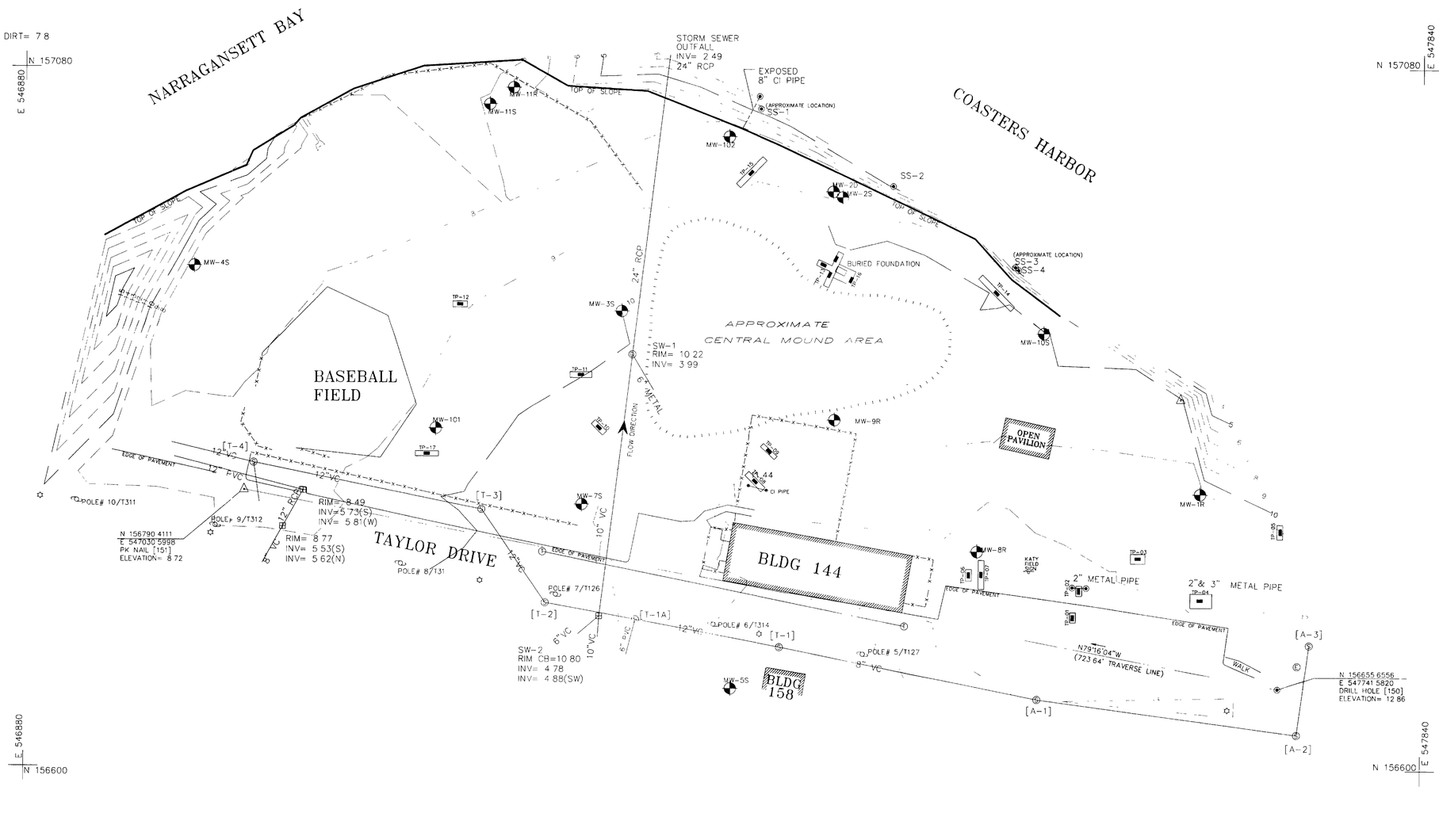
[A-1]
RIM=13 18
INV= 4 05

[A-2]
RIM=12.52
INV= 4 87

[A-3]
RIM=12 27
(FULL) TOP OF DIRT= 7 8

N 157080
E 546880

N 157080
E 547840



◉ APPROXIMATE LOCATION OF SS-5

LEGEND

- VC VITRIFIED CLAY
- CI CAST IRON
- SS SHORE LINE SEDIMENT SAMPLE
- TP TEST PIT
- MW MONITOR WELL
- SW STORM SEWER OUTFALL SAMPLE LOCATION
- CATCH BASIN
- DRAIN MANHOLE
- ELECTRIC MANHOLE
- COMMUNICATIONS MANHOLE
- SANITARY SEWER MANHOLE
- TELEPHONE MANHOLE
- MANHOLE
- WELL
- HANDHOLE/ELECTRIC PLUGS
- CP CONCRETE PAD
- GV GAS VALVE
- GAS SHUT OFF VALVE
- WV WATERGATE
- WATER SHUT OFF VALVE
- FIRE HYDRANT
- MONITORING WELL
- TEST PIT
- LIGHT POLE
- POWER POLE
- GUY WIRE
- SIGN
- POST
- TREE
- —x—x—x— FENCE

GRAPHIC SCALE
40' 0' 40' 80'
1 INCH = 40 FEET

REVISIONS

DATE	REVISED
08-07-97	24" PIPE LOCATION
10-15-97	REDLINE EDITS

NOTES

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DRAWN BY	D.W. MACDOUGALL
PREPARED BY	J. RUDDERS
CHECKED BY:	L. CHU for LC
PROJECT MANAGER:	D. CONAN
PROGRAM MANAGER:	J. TREPANOWSKI

TITLE
BASE MAP
OLD FIRE FIGHTING TRAINING AREA
NETC, NEWPORT, RHODE ISLAND

SOURCE: BASE PLAN BY GUERRIERE & HALNON, INC., JULY 1997

SCALE	DATE	PROJ NO
1" = 40'	NOVEMBER 10, 1997	7578 CTO. 288

DRAWING NO	ACFILE NAME	REV
1	\DWG\NETC\FIREFITE\BASEMAP.DWG	0

Brown & Root Environmental
55 JONSPIN ROAD
WILMINGTON, MASSACHUSETTS 01887
(978)658-7899

PNT#	NORTHING	EASTING	OG	RIM	PVC	DESC.
1164	156995 1519	547434.8142	8 9	9 14	8 58	MW-2D
1163	156991.3256	547441 2658	8 9	9 12	8 84	MW-2S
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1055	156944 0531	546995.6430	7 6	7.91	7.65	MW-4S
1120	156654 5000	547365 5601	12 3	12.70	12 27	MW-5S
1215	156497 9907	547483 6432	13 6	13 66	13 50	MW-6S
1060	156781 0643	547262.5864	10 8	10 97	10 38	MW-7S
1174	156898 8414	547579 6782	9 9	10 42	10 24	MW-10S
1068	157054 8297	547198 5865	7 6	7.91	7 77	MW-11S
1205	156789.7248	547687 4571	11 1	11 55	11 35	MW-1R
1213	156504 6920	547504.2921	13 6	13 96	13.45	MW-6R
1237	156749.5334	547534.4637	12.5	12 83	12 19	MW-8R
1189	156839.5271	547435.8971	10 9	11 76	11.19	MW-9R
1069	157066 2195	547214 9006	7 6	7 64	7 42	MW-11R
1057	156833 2204	547162.0193	9 4	9 50	9 19	MW-101
1094	157032 4634	547363.1827	8 3	8 63	8 47	MW-102

[T-4]
RIM=8 69
INV= 0 56
[T-3]
RIM=10 25
INV= 0 07
[T-2]
RIM=10 48
INV= -0 11
[T-1A]
RIM=11 42
INV= -0 26
[T-1]
RIM=12 75
INV= -0 45

[A-1]
RIM=13 18
INV= 4 05
[A-2]
RIM=12.52
INV= 4 87
[A-3]
RIM=12 27
(FULL) TOP OF DIRT= 7 8

MW-11S	
TOTAL VOCs (µg/l)	ND
TOTAL SVOCs (µg/l)	ND
TOTAL PEST/PCBs (µg/l)	ND
TPH (mg/l)	ND

MW-11R	
TOTAL VOCs (µg/l)	ND
TOTAL SVOCs (µg/l)	5 J
TOTAL PEST/PCBs (µg/l)	ND
TPH (mg/l)	ND

MW-102	
TOTAL VOCs (µg/l)	71
TOTAL SVOCs (µg/l)	28 J
TOTAL PEST/PCBs (µg/l)	ND
TPH (mg/l)	ND

MW-101	
TOTAL VOCs (µg/l)	8 J
TOTAL SVOCs (µg/l)	375 J
TOTAL PEST/PCBs (µg/l)	ND
TPH (mg/l)	ND

MW-3S	
TOTAL VOCs (µg/l)	ND
TOTAL SVOCs (µg/l)	ND
TOTAL PEST/PCBs (µg/l)	ND
TPH (mg/l)	ND

MW-2D	
TOTAL VOCs (µg/l)	ND
TOTAL SVOCs (µg/l)	ND
TOTAL PEST/PCBs (µg/l)	ND
TPH (mg/l)	ND

MW-2S	
TOTAL VOCs (µg/l)	ND
TOTAL SVOCs (µg/l)	ND
TOTAL PEST/PCBs (µg/l)	ND
TPH (mg/l)	ND

MW-9R*	
TOTAL VOCs (µg/l)	ND
TOTAL SVOCs (µg/l)	ND
TOTAL PEST/PCBs (µg/l)	ND
TPH (mg/l)	ND

MW-4S*	
TOTAL VOCs (µg/l)	ND
TOTAL SVOCs (µg/l)	ND
TOTAL PEST/PCBs (µg/l)	ND
TPH (mg/l)	ND

MW-10S	
TOTAL VOCs (µg/l)	ND
TOTAL SVOCs (µg/l)	ND
TOTAL PEST/PCBs (µg/l)	ND
TPH (mg/l)	ND

MW-1R	
TOTAL VOCs (µg/l)	ND
TOTAL SVOCs (µg/l)	ND
TOTAL PEST/PCBs (µg/l)	ND
TPH (mg/l)	ND

MW-8R	
TOTAL VOCs (µg/l)	ND
TOTAL SVOCs (µg/l)	ND
TOTAL PEST/PCBs (µg/l)	ND
TPH (mg/l)	ND

MW-7S	
TOTAL VOCs (µg/l)	ND
TOTAL SVOCs (µg/l)	ND
TOTAL PEST/PCBs (µg/l)	ND
TPH (mg/l)	ND

MW-5S	
TOTAL VOCs (µg/l)	ND
TOTAL SVOCs (µg/l)	ND
TOTAL PEST/PCBs (µg/l)	ND
TPH (mg/l)	ND

MW-6R	
TOTAL VOCs (µg/l)	ND
TOTAL SVOCs (µg/l)	ND
TOTAL PEST/PCBs (µg/l)	ND
TPH (mg/l)	ND

NARRAGANSETT BAY
COASTERS HARBOR
BASEBALL FIELD
TAYLOR DRIVE
BLDG 144
BLDG 158
APPROXIMATE CENTRAL MOUND AREA
BURIED FOUNDATION
OPEN PAVILION
STORM SEWER OUTFALL INV= 2 49 24" RCP
EXPOSED 8" CI PIPE
(APPROXIMATE LOCATION) SS-1
(APPROXIMATE LOCATION) SS-3 SS-4
SS-2
SW-1 RIM= 10 22 INV= 3 99
SW-2 RIM CB=10 80 INV= 4 78 INV= 4 88(SW)
RIM= 8 49 INV=5 73(S) INV= 5 81(W)
RIM= 8 77 INV= 5 53(S) INV= 5 62(N)
N 156790 4111 E 547030 5998 PK NAIL [151] ELEVATION= 8 72
POLE# 10/T311
POLE# 9/T312
POLE# 8/T31
POLE# 7/T126
POLE# 6/T314
POLE# 5/T127
2" METAL PIPE
2"& 3" METAL PIPE
N79°16'04"W (723 64' TRAVERSE LINE)
N 156655 6556 E 547741 5820 DRILL HOLE [150] ELEVATION= 12 86
N 157080 E 546880
N 157080 E 547840
N 156600 E 546880
N 156600 E 547840
APPROXIMATE LOCATION OF SS-5

LEGEND

- VC VITRIFIED CLAY
- CI CAST IRON
- SS SHORE LINE SEDIMENT SAMPLE
- TP TEST PIT
- MW MONITOR WELL
- SW STORM SEWER OUTFALL SAMPLE LOCATION
- CATCH BASIN
- DRAIN MANHOLE
- ELECTRIC MANHOLE
- COMMUNICATIONS MANHOLE
- SANITARY SEWER MANHOLE
- TELEPHONE MANHOLE
- MANHOLE
- WELL
- HANDHOLE/ELECTRIC PLUGS
- CP CONCRETE PAD
- GV GAS VALVE
- GAS SHUT OFF VALVE
- WG WATERGATE
- WATER SHUT OFF VALVE
- FIRE HYDRANT
- MONITORING WELL
- TEST PIT
- LIGHT POLE
- POWER POLE
- GUY WIRE
- SIGN
- POST
- TREE
- FENCE
- PEST PESTICIDES
- µg/l MICROGRAMS PER LITER
- mg/l MILLIGRAMS PER LITER
- J ESTIMATED VALUE
- ND NOT DETECTED
- THE DATA REPRESENTS AN AVERAGE OF THE SAMPLE AND ITS FIELD DUPLICATE

GRAPHIC SCALE
40' 0' 40' 80'
1 INCH = 40 FEET

REVISIONS

DATE	REVISED
08-07-97	24" PIPE LOCATION
10-15-97	REDLINE EDITS

NOTES

1) THE "PROCEDURAL AND TECHNICAL STANDARDS FOR THE PRACTICE OF LAND SURVEYING IN THE STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS" PREPARED BY THE RHODE ISLAND SOCIETY OF PROFESSIONAL LAND SURVEYORS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS DEFINES A CLASS III DATA ACCUMULATION SURVEY AS "SURVEYS DESIGNED TO COLLECT AND REPORT DATA, TYPICALLY FOR THE PURPOSE OF EVALUATION OF EXISTING CONDITIONS AND/OR DESIGN OF FUTURE IMPROVEMENTS SUCH SURVEYS AND PLANS TEND TO MEASURE AND SHOW THE RELATIVE POSITIONS OR LOCATIONS OF PHYSICAL FEATURES TO A STATED GRAPHICAL SCALE WHICH IS SUITED TO THE PURPOSE FOR WHICH THE SURVEY IS TO BE USED THIS CLASSIFICATION INCLUDES TOPOGRAPHIC SURVEYS, PHOTOGRAMMETRIC SURVEYS, SITE PLANS, UTILITY PLANS, ETC TO THE EXTENT THAT PROPERTY LINES ARE REFLECTED ON SUCH PLANS, THEY ARE TO BE REGARDED AS PICTORIAL ONLY, UNLESS SUCH BOUNDARIES ARE ALSO CERTIFIED TO A CLASS I, CLASS II OR CLASS V STANDARD "

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ELEVATIONS ARE BASED ON NGVD MONUMENTS (DATUM OF 1929) ADJUSTED TO THE NAVAL BASE MEAN LOW WATER (MLW)

3) COORDINATES ARE BASED ON THE NORTH AMERICAN 1927 DATUM, RHODE ISLAND STATE PLANE COORDINATES, TRANSVERSE MERCATOR PROJECTION (NAD 27)

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THIS SURVEY AND PLAN CONFORM TO A CLASS III STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS

DRAWN BY: D.W. MACDOUGALL	DWM
PREPARED BY: J. RUDDERS	JER
CHECKED BY: L. CHU	DTC for LC
PROJECT MANAGER: D. CONAN	DTC
PROGRAM MANAGER: J. TREPANOWSKI	

TITLE: GROUNDWATER ANALYTICAL RESULTS TPH AND TOTAL VOCs, SVOCs, AND PEST/PCBs OLD FIRE FIGHTING TRAINING AREA NEWPORT, RHODE ISLAND

SOURCE: BASE PLAN BY GUERRIERE & HALNON, INC., JULY 1997

SCALE	DATE	PROJ NO
1" = 40'	NOVEMBER 10, 1997	7578 CTO: 288

DRAWING NO	ACFILE NAME	REV
5	\DWG\NETC\FIREFITE\GWRESULT.DWG	0

Brown & Root Environmental
55 JONSPIN ROAD
WILMINGTON, MASSACHUSETTS 01887
(978)658-7899

PNT#	NORTHING	EASTING	OG	RIM	PVC	DESC
1164	156995 1519	547434 8142	8 9	9 14	8 58	MW-2D
1163	156991 3256	547441 2658	8 9	9 12	8 84	MW-2S
1064	156913 5180	547289 6223	9 8	10 14	9 97	MW-3S
1055	156944 0531	546995 6430	7 6	7 91	7 65	MW-4S
1120	156654 5000	547365 5601	12 3	12 70	12 27	MW-5S
1215	156497 9907	547483 6432	13 6	13 66	13 50	MW-6S
1060	156781 0643	547262 5864	10.8	10 97	10 38	MW-7S
1174	156898 8414	547579 6782	9 9	10 42	10 24	MW-10S
1068	157054 8297	547198 5865	7 6	7.91	7 77	MW-11S
1205	156789 7248	547687 4571	11 1	11 55	11 35	MW-1R
1213	156504 6920	547504 2921	13 6	13 96	13 45	MW-6R
1237	156749.5334	547534 4637	12 5	12 83	12 19	MW-8R
1189	156839 5271	547435.8971	10 9	11 76	11 19	MW-9R
1069	157066.2195	547214 9006	7.6	7 64	7 42	MW-11R
1057	156833.2204	547162 0193	9 4	9 50	9 19	MW-101
1094	157032 4634	547363 1827	8 3	8 63	8 47	MW-102

[T-4]
RIM=8 69
INV= 0 56
[T-3]
RIM=10 25
INV= 0 07
[T-2]
RIM=10 48
INV= -0 11
[T-1A]
RIM=11 42
INV= -0 26
[T-1]
RIM=12 75
INV= -0.45

[A-1]
RIM=13 18
INV= 4 05
[A-2]
RIM=12 52
INV= 4 87
[A-3]
RIM=12 27
(FULL) TOP OF DIRT= 7 8

N 157080
E 546880

TP-11 Depth = 5-6 ft	
ARSENIC (mg/kg)	8 2 J
BARIUM (mg/kg)	70 0 J
CADMIUM (mg/kg)	ND
CHROMIUM (mg/kg)	12 6 J
LEAD (mg/kg)	432 J
MERCURY (mg/kg)	0 19 J
SELENIUM (mg/kg)	0 85 J
SILVER (mg/kg)	ND

MW-102 Depth = 6-8 ft	
ARSENIC (mg/kg)	53 6 J
BARIUM (mg/kg)	220
CADMIUM (mg/kg)	ND
CHROMIUM (mg/kg)	44 3
LEAD (mg/kg)	5400
MERCURY (mg/kg)	0 65 J
SELENIUM (mg/kg)	1 3 J
SILVER (mg/kg)	ND

TP-15 Depth = 5-6 ft	
ARSENIC (mg/kg)	9 9 J
BARIUM (mg/kg)	144 J
CADMIUM (mg/kg)	ND
CHROMIUM (mg/kg)	12.3 J
LEAD (mg/kg)	766 J
MERCURY (mg/kg)	0 18 J
SELENIUM (mg/kg)	0 87 J
SILVER (mg/kg)	ND

TP-13 Depth = 6-7 ft	
ARSENIC (mg/kg)	18 3 J
BARIUM (mg/kg)	160 J
CADMIUM (mg/kg)	4 4 J
CHROMIUM (mg/kg)	21 7 J
LEAD (mg/kg)	7820 J
MERCURY (mg/kg)	0 35
SELENIUM (mg/kg)	0 71
SILVER (mg/kg)	ND

TP-16 Depth = 10-11 ft	
ARSENIC (mg/kg)	74 4 J
BARIUM (mg/kg)	126
CADMIUM (mg/kg)	ND
CHROMIUM (mg/kg)	61 9
LEAD (mg/kg)	3350
MERCURY (mg/kg)	2 2 J
SELENIUM (mg/kg)	1 2 J
SILVER (mg/kg)	ND

TP-12 Depth = 7-8 ft	
ARSENIC (mg/kg)	4 8 J
BARIUM (mg/kg)	23.9 J
CADMIUM (mg/kg)	ND
CHROMIUM (mg/kg)	8 0 J
LEAD (mg/kg)	283 J
MERCURY (mg/kg)	0 09 J
SELENIUM (mg/kg)	ND
SILVER (mg/kg)	ND

TP-14* Depth = 3-4 ft	
ARSENIC (mg/kg)	10 4 J
BARIUM (mg/kg)	15 3 J
CADMIUM (mg/kg)	ND
CHROMIUM (mg/kg)	14.4 J
LEAD (mg/kg)	40 0 J
MERCURY (mg/kg)	ND
SELENIUM (mg/kg)	0 46 J **
SILVER (mg/kg)	ND

TP-05 Depth = 7-8 ft	
ARSENIC (mg/kg)	14.3 J
BARIUM (mg/kg)	41 4 J
CADMIUM (mg/kg)	ND
CHROMIUM (mg/kg)	15 6
LEAD (mg/kg)	540 J
MERCURY (mg/kg)	0 21 J
SELENIUM (mg/kg)	0 53 J
SILVER (mg/kg)	ND

MW-101 Depth = 6-8 ft	
ARSENIC (mg/kg)	9 3 J
BARIUM (mg/kg)	13 4
CADMIUM (mg/kg)	ND
CHROMIUM (mg/kg)	14 8
LEAD (mg/kg)	12 7
MERCURY (mg/kg)	ND
SELENIUM (mg/kg)	0 50 J
SILVER (mg/kg)	ND

TP-04 Depth = 1-2 ft	
ARSENIC (mg/kg)	9 4 J
BARIUM (mg/kg)	280 J
CADMIUM (mg/kg)	ND
CHROMIUM (mg/kg)	17 0 J
LEAD (mg/kg)	152 J
MERCURY (mg/kg)	0 08 J
SELENIUM (mg/kg)	0 67 J
SILVER (mg/kg)	ND

TP-02 Depth = 2-3 ft	
ARSENIC (mg/kg)	4 1 J
BARIUM (mg/kg)	14 1 J
CADMIUM (mg/kg)	ND
CHROMIUM (mg/kg)	8 7 J
LEAD (mg/kg)	46 6 J
MERCURY (mg/kg)	ND
SELENIUM (mg/kg)	0 81 J
SILVER (mg/kg)	ND

TP-17* Depth = 8-9 ft	
ARSENIC (mg/kg)	7 6 J
BARIUM (mg/kg)	11.8
CADMIUM (mg/kg)	ND
CHROMIUM (mg/kg)	13.8
LEAD (mg/kg)	13 2
MERCURY (mg/kg)	ND
SELENIUM (mg/kg)	ND
SILVER (mg/kg)	ND

TP-08 Depth = 3-4 ft	
ARSENIC (mg/kg)	13 8 J
BARIUM (mg/kg)	33 7 J
CADMIUM (mg/kg)	ND
CHROMIUM (mg/kg)	15 4 J
LEAD (mg/kg)	57 8 J
MERCURY (mg/kg)	0 11 J
SELENIUM (mg/kg)	0 66 J
SILVER (mg/kg)	ND

TP-06 Depth = 6-7 ft	
ARSENIC (mg/kg)	5 7 J
BARIUM (mg/kg)	26 0 J
CADMIUM (mg/kg)	ND
CHROMIUM (mg/kg)	12 3 J
LEAD (mg/kg)	55 5 J
MERCURY (mg/kg)	0.06 J
SELENIUM (mg/kg)	ND
SILVER (mg/kg)	ND

TP-07 Depth = 7-8 ft	
ARSENIC (mg/kg)	6 2 J
BARIUM (mg/kg)	22 7 J
CADMIUM (mg/kg)	ND
CHROMIUM (mg/kg)	10 1 J
LEAD (mg/kg)	40 7 J
MERCURY (mg/kg)	0 10 J
SELENIUM (mg/kg)	0 50 J
SILVER (mg/kg)	ND

NARRAGANSETT BAY
COASTERS HARBOR
TAYLOR DRIVE
BASEBALL FIELD
BLDG 144
BLDG 158
OPEN PAVILION
KATY FIELD
STORM SEWER OUTFALL
INV= 2 49
24" RCP
EXPOSED 8" CI PIPE
(APPROXIMATE LOCATION)
SS-1
SS-2
SS-3
SS-4
TOP OF SLOPE
EDGE OF PAVEMENT
BURIED FOUNDATION
APPROXIMATE CENTRAL MOUND AREA
SW-1
RIM= 10 22
INV= 3 99
SW-2
RIM CB=10 80
INV= 4 78
INV= 4 88(SW)
24" RCP
6" METAL
FLOW DIRECTION
12" VC
10" VC
6" PVC
12" PVC
8" CI PIPE
4" CI PIPE
2" METAL PIPE
2"& 3" METAL PIPE
WALK
N79°16'04"W
(723 64' TRAVERSE LINE)
POLE# 10/T311
POLE# 9/T312
POLE# 8/T31
POLE# 7/T126
POLE# 6/T314
POLE# 5/T127
RIM= 8 49
INV=5 73(S)
INV= 5 81(W)
RIM= 8 77
INV= 5 53(S)
INV= 5 62(N)
N 156790 4111
E 547030 5998
PK NAIL [151]
ELEVATION= 8 72
N 156655 6556
E 547741 5820
DRILL HOLE [150]
ELEVATION= 12 86
N 157080
E 547840
N 156600
E 546880
N 156600
E 547840

MW-1R, MW-2D, MW-2S, MW-3S, MW-4S, MW-5S, MW-6R, MW-6S, MW-7S, MW-8R, MW-9R, MW-10S, MW-11R, MW-11S, MW-101, MW-102

TP-02, TP-03, TP-04, TP-05, TP-06, TP-07, TP-08, TP-11, TP-12, TP-13, TP-14, TP-15, TP-16, TP-17

LEGEND

- VC VITRIFIED CLAY
- CI CAST IRON
- SS SHORE LINE SEDIMENT SAMPLE
- TP TEST PIT
- MW MONITOR WELL
- SW STORM SEWER OUTFALL SAMPLE LOCATION
- CATCH BASIN
- DRAIN MANHOLE
- ELECTRIC MANHOLE
- COMMUNICATIONS MANHOLE
- SANITARY SEWER MANHOLE
- TELEPHONE MANHOLE
- MANHOLE
- WELL
- HANDHOLE/ELECTRIC PLUGS
- CP CONCRETE PAD
- GAS VALVE
- GAS SHUT OFF VALVE
- WATERGATE
- WATER SHUT OFF VALVE
- FIRE HYDRANT
- MONITORING WELL
- TEST PIT
- LIGHT POLE
- POWER POLE
- GUY WIRE
- SIGN
- POST
- TREE
- FENCE

mg/kg MILLIGRAMS PER KILOGRAM
J ESTIMATED VALUE
ND NOT DETECTED
** WHEN A DETECTED VALUE IS AVERAGED WITH A NON-DETECT, ONE HALF THE DETECTION LIMIT WAS USED FOR THE NON-DETECT VALUE
* THE DATA REPRESENTS AN AVERAGE OF THE SAMPLE AND ITS FIELD DUPLICATE

GRAPHIC SCALE
40' 0' 40' 80'
1 INCH = 40 FEET

◉ APPROXIMATE LOCATION OF SS-5

N
W E

REVISIONS	
DATE	REVISED
08-07-97	24" PIPE LOCATION
10-15-97	REDLINE EDITS

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ELEVATIONS ARE BASED ON NGVD MONUMENTS (DATUM OF 1929) ADJUSTED TO THE NAVAL BASE MEAN LOW WATER (MLW)

3) COORDINATES ARE BASED ON THE NORTH AMERICAN 1927 DATUM, RHODE ISLAND STATE PLANE COORDINATES, TRANSVERSE MERCATOR PROJECTION (NAD 27)

4) CENTRAL MOUND WAS NOT SURVEYED DURING THIS EFFORT AND IS NOT SHOWN ON THE TOPO APPROX AREA OF MOUND FROM TRC ENV CORP., DRAFT FINAL RI REPORT, AUG. 1994.

5) ACTUAL SOIL SAMPLING POINT SS-5 WAS NOT SURVEYED. IT'S APPROXIMATE LOCATION IS SHOWN ON THE DRAWING

THIS SURVEY AND PLAN CONFORM TO A CLASS III STANDARD AS ADOPTED BY THE RHODE ISLAND BOARD OF REGISTRATION FOR PROFESSIONAL LAND SURVEYORS

DRAWN BY: D W MACDOUGALL DWM	TITLE. SUBSURFACE SOIL ANALYTICAL RESULTS SELECT METALS OLD FIRE FIGHTING TRAINING AREA NEWPORT, RHODE ISLAND	Brown & Root Environmental
PREPARED BY J RUDDERS JWR		55 JONSPIN ROAD WILMINGTON, MASSACHUSETTS 01887 (978)658-7899
CHECKED BY L CHU Dtc for LC	SOURCE BASE PLAN BY GUERRIERE & HALNON, INC., JULY 1997	
	SCALE 1" = 40' / DATE NOVEMBR 10, 1997 / PROJ. NO 7578 CTO: 288	
PROJECT MANAGER: D CONAN Dtc	DRAWING NO 3 / ACFILE NAME C:\DWG\NETC\FIREFITE\SOILMET DWG / REV 0	
PROGRAM MANAGER. J. TREPANOWSKI		

APPENDIX B

SUMMARY OF ANALYTICAL DATA

RIDEM CRITERIA EXCEEDANCES

Sample Location	Depth Interval ft bgs	CONSTITUENT CONCENTRATION * (mg/kg)					
		TPH	SVOCs			Metals	
			Benzo(a)pyrene	Dibenzo(a,h)-anthracene	2-methylnaphthalene	Arsenic	Lead
TP-2	2 - 3					4.1 J	
TP-4	1 - 2					9.4 J	
TP-5	7 - 8					14.3 J	540 J
TP-6	6 - 7					5.7 J	
TP-7	7 - 8					6.2 J	
TP-8	3 - 4					13.8 J	
TP-11	5 - 6	6650 J***			3.5 J***	8.25 J***	
TP-12	4 - 5	4100 J				4.8 J	
TP-13	6 - 7	7400 J				18.3 J	7820 J
TP-14	3 - 4	3750 J***				10.45 ***	
TP-15	5 - 6	21000 J	0.97 J		1.3 J	9.9 J	766 J
TP-16	10 - 11	6400				74.4 J	3350
TP-17	8 - 9				0.67 ***	7.65 ***	
SB-101 (MW-101)	6 - 8				11	9.3 J	
SB-102 (MW-102)	6 - 8	8200	4	0.82 J	4.3 J	53.6 J	5400
SS-1	0 - 0.5		2.25 J***		0.21 J***		
SS-3	0 - 0.5	4400 J					
RIDEM ** Criteria		**2500**	**0.8**	**0.8**	**0.04**	**3.8**	**500**

NOTES:

* Originally reported as ug/kg and converted to mg/kg, refer to the raw data in Appendix
** Industrial/Commercial Direct Exposure Criteria, per RIDEM regulations (mg/kg).
*** Duplicate pair results averaged. Average not reported if less than RIDEM action level.
[ ] Blank cell (not reported) if concentration is less than the listed RIDEM criteria.
SS = Shoreline Sediment
TP = Test Pit
SB = Soil Boring
MW = Monitoring Well
SS-3 is an asphalt sample.
There were no exceedences for VOCs or Pesticides / PCBs in subsurface soils (TP or SB sample
SS samples were not analyzed for VOCs or Metals
bgs = below ground surface

LOCATION OF ANALYTICAL SAMPLES
OLD FIREFIGHTING TRAINING AREA
NETC, NEWPORT, RI

SAMPLE ID	Location in Appendix
OFF-A-DUPL4	FTA003
OFF-A-DUPL5	FTA003
OFF-A-DUPL7	FTA003
OFF-A-FB1	FTA001
OFF-A-FB2	FTA003
OFF-A-MW101-01	FTA003
OFF-A-MW101-01-F	FTA003
OFF-A-MW101-RB9	FTA003
OFF-A-MW101-RB9-F	FTA003
OFF-A-MW102-01	FTA003
OFF-A-MW102-01-F	FTA003
OFF-A-MW10S-01	FTA003
OFF-A-MW10S-RB7	FTA003
OFF-A-MW11R-01	FTA003
OFF-A-MW11S-01	FTA003
OFF-A-MW1R-01	FTA003
OFF-A-MW1R-RB6	FTA003
OFF-A-MW2D-01	FTA003
OFF-A-MW2S-01	FTA003
OFF-A-MW3S-01	FTA003
OFF-A-MW4S-01	FTA003
OFF-A-MW4S-RB8	FTA003
OFF-A-MW5S-01	FTA003
OFF-A-MW6R-01	FTA003
OFF-A-MW6R-01-F	FTA003
OFF-A-MW7S-01	FTA003
OFF-A-MW8R-01	FTA003
OFF-A-MW9R-01	FTA003
OFF-A-MW9R-O1-F	FTA003
OFF-A-SW1-0506	FTA003
OFF-A-SW2-0506	FTA003
OFF-A-TB1	FTA001
OFF-A-TB2	FTA001
OFF-A-TB4	FTA001
OFF-A-TB5	FTA002
OFF-A-TB6	FTA003
OFF-A-TB7	FTA003
OFF-A-TB8	FTA003
OFF-A-TB9	FTA003
OFF-A-TP-02-0203-RB1	FTA001
OFF-A-TP-04-0102-RB2	FTA001
OFF-A-TP-11-0506-RB3	FTA001
OFF-A-TP-13-0607-RB4	FTA001
OFF-A-TP-17-0809-RB5	FTA002
OFF-S-DUPL1	FTA001
OFF-S-DUPL2	FTA001
OFF-S-DUPL3	FTA002
OFF-S-DUPL6	FTA002
OFF-S-MW101-0608	FTA002
OFF-S-MW102-0608	FTA002

LOCATION OF ANALYTICAL SAMPLES
OLD FIREFIGHTING TRAINING AREA
NETC, NEWPORT, RI

SAMPLE ID	Location in Appendix
OFF-S-SS1-0005	FTA002
OFF-S-SS2-0005	FTA002
OFF-S-SS3-0000	FTA002
OFF-S-SS4-0005	FTA002
OFF-S-SS5-0005	FTA002
OFF-S-TP-02-0203	FTA001
OFF-S-TP-04-0102	FTA001
OFF-S-TP-05-0708	FTA001
OFF-S-TP-06-0607	FTA001
OFF-S-TP-07-0708	FTA001
OFF-S-TP-08-0304	FTA001
OFF-S-TP-11-0506	FTA001
OFF-S-TP-12-0405	FTA001
OFF-S-TP-13-0607	FTA001
OFF-S-TP-14-0304	FTA001
OFF-S-TP-15-0506	FTA001
OFF-S-TP-16-1011	FTA002
OFF-S-TP-17-0809	FTA002

FTA001

TCL VOAs, SVOAs, PEST/PCBs

7578-5.9

Brown & Root Environmental INTERNAL CORRESPONDENCE

C-49-08-7-222

TO: D. CONAN **DATE:** SEPTEMBER 18, 1997

FROM: SEAN NIXON **COPIES:** DV FILE

SUBJECT: ORGANIC DATA VALIDATION - TCL VOAS, SVOAS, PEST/PCBS
CTO 288 - NETC NEWPORT, RHODE ISLAND
SDG - FTA001

SAMPLES: 9/Aqueous

OFF-A-FB1	OFF-A-TB1	OFF-A-TB2
OFF-A-TB3	OFF-A-TB4	OFF-A-TP-02-0203-RB1
OFF-A-TP-04-0102-RB2	OFF-A-TP-11-0506-RB3	OFF-A-TP-13-0607-RB4

13/Solid

OFF-S-DUPL1	OFF-S-DUPL2	OFF-S-TP-02-0203
OFF-S-TP-~~04-0102~~ 13-0405	OFF-S-TP-05-0708	OFF-S-TP-06-0607
OFF-S-TP-07-0708	OFF-S-TP-08-0304	OFF-S-TP-11-0506
OFF-S-TP-14-0304	OFF-S-TP-15-0506	OFF-S-TP-04-0102
OFF-S-TP-13-0607		

The sample set for CTO 288 (NETC) Newport, Rhode Island SDG FTA001 consists of nine (9) aqueous environmental samples, including four (4) trip blanks designated -TB-, four (4) rinse blanks designated -RB, on (1) field blank designated -FB, and thirteen (13) solid environmental samples. The field duplicate pairs, samples OFF-S-TP-11-0506/ OFF-S-DUPL1, and OFF-S-TP-14-0304/ OFF-S-DUPL2, were included in this SDG. All samples were analyzed for Target Compound List (TCL) volatile organics. All samples, except the trip blanks, were analyzed for TCL semivolatile organics and Pesticide/ PCBs. Samples OFF-S-TP-04-0102 and OFF-S-TP-13-0607 were specified for Matrix Spike/ Matrix Spike Duplicate (MS/ MSD) analysis by the field crew.

The samples were collected by Brown and Root Environmental on June 30, July 1, 2, and 3, 1997 and analyzed by Katahdin Analytical Services under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. All analyses were conducted using the Contract Laboratory Program (CLP) Statement of Work (SOW) OLM03.1

These data were evaluated based on the following parameters:

- Data Completeness
- Holding Times and Sample Handling/Storage
- Calibrations
- Calibration Verifications
- Laboratory Blank Analyses
- Surrogate Spike Recoveries
- Matrix Spike Results
- Laboratory Control Samples
- Internal Standard Performance
- Compound Identification
- Compound Quantitation
- Field Duplicate Results

* • Detection Limits
* • Tentatively Identified Compounds (TICs)

* - All quality control criteria were met for this parameter.

The attached Table 1 summarizes the validation recommendations which were based on the following information:

HOLDING TIMES

Th coolers which contained the samples that were collected on June 30, and July 1, 1997 had temperature observations via temperature blanks greater than the six degree Celsius quality control limit. The positiv and nondetected results of the affected samples for the volatile analyses only were qualified as estimated, (J) and (UJ) respectively. The following table summarizes which samples were shipped in coolers with temperatures greater than the six degree quality control limit and corresponding validation actions.

Affected Sample	Cooler Temperature of 10° C	Cooler Temperature of 7.2° C
OFF-A-TB1	Y	
OFF-A-TP-02-0203-RB1	Y	
OFF-S-TP-02-0203	Y	
OFF-A-TB2		Y
OFF-A-TP-04-0102-RB2		Y
OFF-A-FB1		Y
OFF-S-TP-04-0102		Y
OFF-S-TP-05-0708		Y
OFF-S-TP-06-0607		Y

Holding time/Sample Storage Actions

Y - Sample storage temperature greater than six degree Celsius quality Control Limit. Qualify all positive and nondetected results for volatile TCL compounds only as estimated, (J) and (UJ) respectively.

CALIBRATIONS

The following table summarizes calibration noncompliances and corresponding validation actions. Th key associated with this table is presented after the table.

Volatiles

Compound	IC 07-02-97	IC 07-02-97
2-Butanone	XX	
4-Methyl-2-pentanone	XX	
Bromoform		XX
Acetone	XX	

Affected Samples	OFF-A-FB1, OFF-A-TB1 OFF-A-TB2 OFF-A-TB3, OFF-A-TB4, OFF-A-TP-02-0203-RB1 OFF-A-TP-04-0102-RB2, OFF-A-TP-11-0506-RB3 OFF-A-TP-13-0607-RB4	OFF-S-S-DUPL1, OFF-S-DUPL2 OFF-S-TP-02-0203, OFF-S-TP-0405 OFF-S-TP-05-0708, OFF-S-TP-06-0607 OFF-S-TP-07-0708, OFF-S-TP-08-0304 OFF-S-TP-11-0506, OFF-S-TP-14-0304 OFF-S-TP-15-0506, OFF-S-TP-4-0102 OFF-S-TP-13-0607

Compound	CC 07-02-97	CC 07-03-97	CC 07-08-97
2-Butanone	XX	XX	XX
2-H xanone	XX	XX	XX
Acetone	XX	XX	XX

Affected Samples	OFF-A-FB1, OFF-A-TB1 OFF-A-TB2 OFF-A-TP-02-0203-RB2	OFF-A-TB3 OFF-A-TP-04-0102-RB2 OFF-A-TP-11-0506-RB3	OFF-A-TP-13-0607-RB4 OFF-A-TB4

Semivolatiles

Compound	CC 07-21-97
Hexachlorocyclopentadiene	XX
Acenaphthene	XX
4,6-Dinitro-2-methylphenol	XX
3,3'-Dichlorobenzidine	XX
Bis-(2-ethylhexyl)phthalate	XX
Di-n-octylphthalate	XX

Affected Samples: OFF-S-DUPL1, OFF-S-DUPL2, OFF-S-TP-0405, OFF-S-TP-11-0506, OFF-S-TP-14-0304, OFF-S-TP-15-0506, OFF-TP-13-0607

Calibration Actions

X - Percent Relative Standard Deviation (%RSD) greater than 20% for pesticide/PCBs. Qualify nondetected results as estimated, (UJ).

XX - Percent Difference (%D) greater than 25%, or %RSD greater than 30%. Qualify nondetected results as estimated, (UJ).

An initial calibration for volatiles reported Percent Relative Standard Deviations (%RSDs) greater than th 30% quality control limit for acetone (64.3%), 2-butanone (53.0%), and 4-methyl-2-pentanone (40.1%). The positiv results for acetone in the affected samples were qualified for blank contamination. The positive and nondetected results for 2-butanone and 4-methyl-2-pentanone in the affected samples were qualified as estimated, (J) and (UJ) respectively.

An initial calibration for volatiles reported a %RSD greater than the 30% quality control limit for bromoform (30.1%). The positive and nondetected results for bromoform in the affected samples were qualified as estimated, (J) and (UJ) respectively.

A volatile continuing calibration had Percent Differences (%Ds) greater than the 25% quality control limit for acetone (50.6%), 2-butanone (43.1%), and 2-hexanone (34.8%). The positive result for acetone in sample OFF-A-TB1 was qualified as estimated, (J). The positive results for acetone in the remaining affected samples w re qualified for blank contamination. The positive and nondetected results for 2-butanone and 2-hexanone were qualified as estimated, (J) and (UJ) respectively.

A volatile continuing calibration had Percent Differences (%Ds) greater than the 25% quality control limit for acetone (41.3%), 2-butanone (37.2%), and 2-hexanone (29.5%). The positive results for acetone in the affected samples were qualified for blank contamination. The positive and nondetected results for 2-butanone and 2-h xanone in the affected samples were qualified as estimated, (J) and (UJ) respectively.

A volatile continuing calibration had Percent Differences (%Ds) greater than the 25% quality control limit for acetone (42.5%), 2-butanone (40.7%), and 2-hexanone (31.4%). The positive results for acetone in the affected samples were qualified for blank contamination. The positive and nondetected results for 2-butanone and 2-hexanone in the affected samples were qualified as estimated, (J) and (UJ) respectively.

A semivolatile continuing calibration had %Ds greater than the 25% quality control limit for hexachlorocyclopentadiene (51.3%), acenaphthene (47.5%), 4,6-dinitro-2-methyphenol (45.9%), 3,3'-dichlorbenzidine (53.5%), bis(2-ethylhexyl)phthalate (29.0%), and di-n-octylphthalate (75.3%). The positiv and nondetected results for the aforementioned compounds in the affected samples were qualified as estimated, (J) and (UJ) respectively.

BLANKS

The following contaminants were detected in the laboratory method/ preparation blanks at the following maximum concentrations:

Volatiles

Compound	Maximum Concentration	Aqueous Action Level
Acetone	25 ug/L	250 ug/kg, ug/L
Methylene Chloride	6 ug/L	60 ug/L, ug/L

Samples Affected: All

Semivolatiles

Compound	Maximum Concentration	Aqueous Action Level (ug/L)
Bis(2-ethylhexyl)phthalate	33 ug/L	330 ug/L

Blank Actions

Valu < Contract Required Quantitation Limit (CRQL); report CRQL followed by a U.
Value > CRQL and < Action level; report value followed by a U.
Value > CRQL and > action level; report value unqualified.

* Maximum concentration found in a field quality control blank.

Sample aliquot, dilution factors, and percent moisture were considered prior to the application of the action l vels. Positive results reported for the compounds listed above were qualified according to the blank action table. It should be noted that field quality control blanks were not qualified for field quality control blank contamination.

SURROGATE SPIKE RECOVERIES

Volatiles

Several volatile samples yielded high surrogate %Rs for bromofluorobenzene with similar results on reanalys s. Since only nondetected results were reported for the target compounds in these instances of high bromofluorobenzene recoveries, no validation action was taken.

The volatile analysis of sample OFF-S-DUPL1 did not report a surrogate recovery for bromofluorobenzene due to matrix interference. The laboratory performed a secondary ion quantitation as requested and a bromofluorobenzene recovery of 80% was reported. The sample was reanalyzed at a dilution due to the concentration of methylene chloride, and all of the surrogates reported recoveries within the quality control limits. The riginal analysis was used for data validation purposes, except for methylene chloride, and the positive result for acetone was qualified as estimated, (J).

The volatile analysis of sample OFF-S-TP-11-0506 yielded recovery above the quality control limits for the surrogate bromofluorobenzene. The sample was reanalyzed and high surrogate recoveries were reported for toluene-d8 and bromofluorobenzene. The original analysis was used for data validation purposes. The positive results for acetone and methylene chloride were qualified as estimated, (J).

The volatile analysis of sample OFF-S-TP-15-0506 did not report a surrogate recovery for bromofluorobenzene due to matrix interference. The sample was reanalyzed with similar results. The original analysis was used for data validation purposes and the positive result for acetone was qualified as estimated, (J).

Semivolatiles

The semivolatile analysis of sample OFF-S-DUPL1 reported a nitrobenzene-d5 surrogate recovery above the 114% quality control limit, and a terphenyl-d14 surrogate recovery below the 33% quality control limit. Since

conflicting surrogate recoveries exist for these acid fractional surrogates in the aforementioned sample, positive and nondetected results of the acid fraction were qualified as estimated, (J) and (UJ) respectively.

Th semivolatile analysis of sample OFF-S-TP-11-0506 reported a nitrobenzene-d5 surrogate recovery above the 114% quality control limit, and a terphenyl-d14 surrogate recovery below the 33% quality control limit. Since conflicting surrogate recoveries exist for these acid fractional surrogates in the aforementioned sample, positive and nondetected results of the acid fraction were qualified as estimated, (J) and (UJ) respectively. However, many nondetected results were rejected, (UR), due to internal standard areas less than 20% of the continuing calibration.

Pesticide/PCBs

The analysis of sample OFF-S-TP-14-0304 yielded low surrogate recoveries for tetrachloro-meta-xylene and decchlorobiphenyl. The positive and nondetected results in the aforementioned sample were qualified as estimated, (J) and (UJ) respectively.

MATRIX SPIKE/ MATRIX SPIKE DUPLICATE

Semivolatiles

Th Matrix Spike (MS) analysis of OFF-TP-04-0102 yielded a Percent Recovery (%R) above the quality control for pyrene, while the Matrix Spike Duplicate (MSD) yielded Relative Percent Differences (%RPDs) above the quality control limits for 1,4-dichlorbenzene, 1,2,4-trichlorobenzene, and pentachlorophenol. The positive and nondetected results for the aforementioned compounds in the affected sample were qualified as estimated, (J) and (UJ) respectively.

The MS/MSD analysis of OFF-S-TP-13-0607 yielded %Rs above the quality control limits for n-ntroso-dipropylamine, 4-nitrophenol, and 2,4-dinitrophenol, and RPDs greater than the quality control limits for 1,2,4-trichlorbenzene, 4-chloro-3-methylphenol, acenaphthene, 4-nitrophenol, and 2,4-dinitrotoluene. Th nondetected results for the aforementioned compounds in the affected sample were qualified as estimated, (UJ).

Pesticide/PCBs

Th MS/MSD analysis of OFF-TP-04-0102 yielded a high %R for 4,4'-DDT and a high RPD for 4,4'-DDT. The positive result for 4,4'-DDT in the aforementioned sample was qualified as estimated, (J).

The MS/MSD analysis of OFF-TP-13-0607 yielded low %Rs for Heptachlor and Aldrin. The nondetected results for Heptachlor and Aldrin in the aforementioned sample were qualified as estimated, (UJ).

INTERNAL STANDARDS

Semivolatiles

The semivolatile analysis of sample OFF-S-TP-11-0506 reported internal standard areas less than the 50% quality control limit for chrysene-d12, and areas less than the 20% quality control limit for naphthalene-d8, acenaphthene-d10, and phenanthrene-d10. The sample was reanalyzed at dilution for phenanthrene and naphthalene and the internal standards acenaphthene-d10 and phenanthrene-d10 yielded areas less than the 50% quality control limit. The original analysis was used for data validation except for phenanthrene and naphthene. The positive result for phenanthrene in the dilution was qualified as estimated, (J). The positive and

nondetected results for the compounds associated with the internal standard chrysene-d12 in the aforementioned sample were qualified as estimated, (J) and (UJ) respectively. The positive results associated with the internal standards naphthalene-d8, acenaphthene-d10, and phenanthrene-d10 in the aforementioned sample were qualified as estimated, (J). The nondetected results associated with the internal standards naphthalene-d8, acenaphthene-d10, and phenanthrene-d10 in the aforementioned sample were rejected, (UR).

Th semivolatile analysis of sample OFF-S-TP-0405 reported internal standard areas less than the 50% quality control limit for acenaphthene-d10 and phenanthrene-d10. The sample was reanalyzed at a dilution for ph nanthrene and the internal standard perylene-d12 was below the 50% quality control limit. The original analysis was used for data validation except for phenanthrene. The positive and nondetected compounds associated with the noncompliant internal standards in the aforementioned analysis were qualified as estimated, (J) and (UJ) respectively.

Th semivolatile analysis of sample OFF-S-DUPL1 reported internal standard areas less than the 20% quality control limit for phenanthrene-d10, and areas less than the 50% quality control limit for naphthalene-d8, and acenaphthene-d10. The sample was reanalyzed at dilution for naphthalene and phenanthrene and all internal standard areas were compliant. The original analysis was used for data validation except for naphthalene and phenanthrene. The nondetected results associated with the internal standard phenanthrene-d10 were rejected, (UR). The positive results associated with phenanthrene-d10 in the affected sample were qualified as estimated, (J). The positive and nondetected results associated the internal standards naphthalene-d8 and acenaphthene-d10 w re qualified as estimated, (J) and (UJ) respectively.

The semivolatile analysis of sample OFF-S-TP-14-0304 reported an internal standard area less than the 20% quality control limit for phenanthere-d10, and an internal standard area less than the 50% quality control limit for acenaphthathene-d10. The nondetected results in the aforementioned sample associated with phenanthrene-d10 were rejected, (UR), and the positive results were qualified as estimated, (J). The positive and nondetected results associated with acenaphthene-d10 were qualified as estimated, (J) and (UJ) respectively.

Th semivolatile analysis of sample OFF-S-DUPL2 reported internal standard areas less than the 50% quality control limit for acenphthene-d10 and phenanthrene-d10. The positive and nondetected results in the aforementioned sample associated with the noncompliant internal standards were qualified as estimated, (J) and (UJ) respectively.

The semivolatile analysis of sample OFF-TP-04-0102 reported internal standard areas less than the 50% quality control limit for chrysene-d12. The positive and nondetected results associated with this noncompliant internal standard in the affected sample were qualified as estimated, (J) and (UJ) respectively.

The semivolatile analysis of sample OFF-S-TP-15-0506 reported internal standard areas less than the 20% quality control limit for acenaphthene-d10 and phenanthrene-d10, and areas less than the 50% quality control limit for chrysene-d12 and perylene-d12. The sample was reanalyzed at a dilution for phenanthrene and all internal standard areas were acceptable. The original analysis was used for data validation except for phenanthrene. The nondetected results associated with acenaphthene-d10 and phenanthrene-d10 w re rejected, (UR), while the positive results were qualified as estimated, (J). The positive and nondetected results associated with chrysene-d12 and perylene-d12 were qualified as estimated, (J) and (UJ) respectively.

The semivolatile analysis of sample OFF-S-TP-13-0607 reported internal standard areas less than the 50% quality control limit for acenaphthene-d10 and phenanthrene-d10. The positive and nondetected results associated with the noncompliant internal standards in the affected sample were qualified as estimated, (J) and (UJ) respectively.

FIELD DUPLICATE RESULTS

A field duplicate precision comparison is presented in Appendix D.

Volatiles

Th positive results of the field duplicate pair OFF-S-TP-11-0506/ OFF-S-DUPL1 for acetone and methylene chloride reported Relative Percent Differences (RPDs) greater than the 50% quality control limit. The positive results for acetone and methylene chloride in the aforementioned samples were qualified as estimated, (J).

Semivolatiles

Increased reporting limits were noted between each of the samples in each field duplicate pair.

The positive results of the field duplicate pair OFF-S-TP-11-0506/ OFF-S-DUPL1 for 2-methylnaphthalen , anthracene, and fluorene reported RPDs greater than the 50% quality control limit. The positive results for the aforementioned compounds in the affected samples were qualified as estimated, (J).

The nondetected and positive results of the field duplicate pair OFF-S-TP-14-0304/ OFF-S-DUPL2 for phenanthrene reported an RPD greater than the 50% quality control limit. Since one result is a nondetected result and the other is greater than the CRQL, the positive and nondetected results for phenanthrene in th aforementioned samples were qualified as estimated, (J) and (UJ) respectively.

COMPOUND QUANTITATION

Pesticide/PCBs

The %D between analytical columns for Heptachlor epoxide in sample OFF-S-TP-02-0203 was greater than the 25% quality control limit. The positive result for Heptachlor epoxide in the aforementioned sample was qualified as estimated, (J).

The %D between analytical columns for Heptachlor epoxide in sample OFF-S-TP-08-0304 was greater than the 25% quality control limit. The positive result for Heptachlor epoxide in the aforementioned sample was qualified as estimated, (J).

ADDITIONAL COMMENTS

Positive results less than the CRQL were qualified as estimated, (J).

The pestcide/PCB Form Is did not contain the correct sample Ids. The data reviewer has corrected th appropriate forms.

It should be noted that the electronic data contained some erroneous sample IDs.

It should be noted that the electronic data occasionally contained incorrect data values, while the Form Is were correct.

It should be noted that the volatile MS analysis of sample OFF-S-TP-13-0607 yielded high spike recoveries for all of the spiked compounds due to low internal standard areas. The MSD analysis yielded acceptable spike

recoveries and internal standard areas that were responsible for the noncompliant Relative Percent Differences between the MS and the MSD. No validation action was taken for this noncompliance.

Executive Summary

Laboratory Performance: Blank contamination was noted for acetone, methylene chloride, and bis(2-ethylhexylphthalate. Several volatile compounds were noncompliant in the initial calibrations. Several volatile and semivolatile compounds were noncompliant in continuing calibration analyses. Samples OFF-S-TP-02-0203 and OFF-S-TP-08-0304 had noncompliant %Ds between analytical columns in the pesticide/PCB results for H ptachlor epoxide.

Other Factors Affecting Data Quality: Noncompliant temperatures observed in the sample transportation coolers resulted in the estimation of the volatile results for some samples. Several samples in semivolatil analyses contained low internal standard areas. Samples OFF-S-DUPL1, OFF-S-TP-11-0506, and OFF-S-TP-15-0506 yielded noncompliant surrogate recoveries in the volatile analyses. Samples OFF-S-DUPL1 and OFF-S-TP-11-0506 yielded low surrogate recoveries for two of the same fractional surrogates in the semivolatile analysis for each sample. Sample OFF-S-TP-14-0304 yielded low surrogate recoveries in the Pesticide/PCB analysis. Various MS/MSD noncompliances were noted for volatiles, semivolatiles, and pesticide/PCB analyses. Field duplicate imprecision was noted for volatiles and semivolatiles.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Organic Review", February 1994, "EPA Region I Volatile/ Semivolatile Data Validation Functional Guidelines", December 1996 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide " (NFESC 2/96).

Th text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Sean T. Nixon
Chemist/Data Validator
Brown and Root Environmental

Joseph A. Samchuck
Data Validation Quality Assurance Officer
Brown and Root Environmental

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Regional Worksheets.
4. Appendix D - Support Documentation

NETC Newport
SDG FTA001
TABLE 1 - RECOMMENDATION SUMMARY

Sample	Volatile	Semivolatile	Pesticide/PCB
OFF-A-FB1	$A^{2,4,6}$	A^{3}	
OFF-A-TB1	$A^{4,6}$, J^{1}		
OFF-A-TB2	$A^{4,6}$, J^{1}		
OFF-A-TB3	$A^{2,4,6}$		
OFF-A-TB4	$A^{1,4,6}$		
OFF-A-TP-02-0203-RB1	$A^{4,6}$, J^{1}		
OFF-A-TP-04-0102-RB2	$A^{2,4,6}$, J^{1}	A^{3}	
OFF-A-TP-11-0506-RB3	$A^{2,4,6}$	A^{3}	
OFF-A-TP-13-0607-RB4	$A^{4,6}$	A^{3}	
OFF-S-DUPL1	$A^{1,5,7,10}$	$A^{11,12,15,17,20,23,28}$, R^{3}	
OFF-S-DUPL2		$A^{11,17,19,24,28}$	
OFF-S-TP-02-0203	$A^{2,5}$, J^{1}		A^{25}
OFF-S-TP-0405	$A^{1,2,5}$	$A^{11,17,19,28}$	
OFF-S-TP-05-0708	$A^{2,5}$, J^{1}	A^{28}	
OFF-S-TP-06-0607	$A^{2,5}$, J^{1}	A^{28}	
OFF-S-TP-07-0708	$A^{2,5}$	A^{28}	
OFF-S-TP-08-0304	A^{5}	A^{28}	A^{25}
OFF-S-TP-11-0506	$A^{1,5,8,10}$	$A^{11,12,16,18,20,21,23,28}$, $R^{1,2,3}$	
OFF-S-TP-14-0304	$A^{2,5}$	$A^{11,17,20,24,28}$, R^{3}	J^{2}
OFF-S-TP-15-0506	$A^{1,2,5,9}$, J^{1}	$A^{11,18,21,22}$, R^{2}	
OFF-S-TP-04-0102	$A^{2,5}$	$A^{13,21,28}$	A^{26}
OFF-S-TP-13-0607	$A^{1,2,5}$, J^{1}	$A^{11,14,17,19,28}$	A^{27}

A^{1} - Accept data, but qualify positive results for acetone as nondetected, (U), as a result of blank contamination.

A^{2} - Accept data, but qualify positive results for methylene chloride as nondetected, (U), as a result of blank contamination.

A^{3} - Accept data, but qualify positive results for bis(2-ethylhexyl)phthalate as nondetected, (U), as a result of blank contamination.

A^{4} - Accept data, but qualify nondetected results for 2-butanone and 4-methyl-2-pentanone as estimated, (UJ), as a result of initial calibration %RSDs greater than the 30%% quality control limit.

A^{5} - Accept data but qualify nondetected results for bromoform as estimated, (UJ), asa result of initial calibration %RSD greater than the 30% quality control limit.

A^{6} - Accept data, but qualify nondetected results for 2-butanone and 2-hexanone as estimated, (UJ), as a result of continuing calibration %Ds greater than the 25% quality control limit.

A^{7} - Accept data, but qualify the positive result for methylene chloride as estimated, (J), as a result of the lack of recovery for the surrogate bromofluorobenzene.

A^{8} - Accept data, but qualify positive results for methylene chloride and acetone as estimated, (J), as a result of the lack of recovery for the surrogate bromofluorobenzene.

A^{9} - Accept data, but qualify the positive result for acetone as estimated, (J), as a result of the lack of recovery for the surrogate bromofluorobenzene.

A^{10} - Accept data, but qualify positive results for methylene chloride as estimated, (J), as a result of field duplicate RPDs greater than the 50% quality control limit.

A^{11} - Accept data, but qualify nondetected results for hexachlorocyclopentadiene, acenaphthene, 4,6-dinitro-2-methylphenol, 3,3'-dichlorobenzidine, bis-(2-ethylhexyl)phthalate, di-n-octylphthalate as estimated, (J), as a result of continuing calibration %Ds greater than the 25% quality control limit.

A^{12} - Accept data, but qualify positive and nondetected results of the base/neutral fraction as estimated, (J) and (UJ) respectively, as a result of a low surrogate recovery for nitobenzene-d5 and a high surrogate recovery for terphenyl-d14.

A^{13} - Accept data but qualify positive and nondetected results for pyrene, 1,4-dichlorbenzene, 1,2,4-trichlorobenzene, and pentachlorophenol as estimated, (J) and (UJ) respectively, as a result of MS/MSD noncompliances.

A^{14} - Accept data but qualify positive and nondetected results for n-ntroso-dipropylamine, 4-nitrophenol, and 2,4-dinitrophenol, 1,2,4-trichlorbenzene, 4-chloro-3-methylphenol, acenaphthene, and 2,4-dinitrotoluene as estimated, (J) and (UJ) respectively, as a result of MS/MSD noncompliances.

A^{15} - Accept data, but qualify positive and nondetected results associated with the internal standard (IS) naphthalene-d8 as estimated, (J) and (UJ) respectively, as result of IS area less than the 50% quality control limit.

A^{16} - Accept data, but qualify positive results associated with the Internal Standard (IS) naphthalene-d8 as estimated, (J), as a result of IS area less than the 20% quality control limit.

A^{17} - Accept data, but qualify positive and nondetected results associated with the IS acenaphthene-d10 as estimated, (J) and (UJ) respectively, as a result of IS area less than the 50% quality control limit.

A^{18} - Accept data, but qualify positive results associated with the IS acenaphthene-d10 as estimated, (J), as a result of IS area less than the 20% quality control limit.

A^{19} - Accept data, but qualify positive and nondetected results associated with the IS phenanthrene-d10 as estimated, (J), as a result of IS area less than the 50% quality control limit.

A^{20} - Accept data, but qualify positive results associated with the IS phenanthrene-d10 as estimated, (J), as a result of IS area less than 20% quality control limit.

A^{21} - Accept data, but qualify positive and nondetected results associated with the IS chrysene-d12 as estimated, (J) and (UJ) respectively, as a result of IS area less than 50% quality control limit.

A^{22} - Accept data, but qualify positive results and nondetected results associated with the IS perylene-d12 as estimated, (J) and (UJ) respectively, as a result of IS area less than the 50% quality control limit.

A^{23} - Accept data, but qualify positive and nondetected results for 2-methylnaphthalene as estimated, (J), as a result of field duplicate imprecision.

A^{24} - Accept data, but qualify positive and nondetected results for phenanthrene as estimated, (J) and (UJ) as a result of field duplicate imprecision.

A^{25} - Accept data, but qualify positive results for Heptachlor epoxide as estimated, (J) as a result of %D between analytical columns greater than 25%.

A^{26} - Accept data, but qualify positive result for 4,4'-DDT as estimated, (J), as a result of MS/MSD noncompliance.

A^{27} - Accept data, but qualify nondetected results for Aldrin and Heptachlor as estimated, (UJ), as a result of of poor MS/MSD %R/ RPD.

A^{28} - Accept data, but qualify positive results less than the CRQL as estimated, (J).

R^{1} - Reject nondetected results, (UR), associated with the internal standard naphthalene-d8 on account of IS area less than 20% quality control limit.

R^{2} - Reject nondetected results, (UR), associated with IS acenaphthene-d10 on account of IS area less than the 20% quality control limit.

R^{3} - Reject nondetected results, (UR) associated with the IS phenanthrene-d10 on account of IS area less than 20% quality control limit.

J^{1} - Accept data, but qualify positive and nondetected results as estimated, (J) and (UJ) respectively, as a result of cooler temperature greater than six degree Celsius quality control limit.

J^{2} - Accept data, but qualify positive and nondetected results as estimated, (J) and (UJ) respectively, as a result of low surrogate recoveries.

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SAMPLE NUMBER:	OFF-A-FB1			OFF-A-TB1			OFF-A-TB2			OFF-A-TB3			OFF-A-TB4		
SAMPLE DATE:	07/01/97			06/30/97			07/01/97			07/02/97			07/03/97		
LABORATORY ID	WN1718-6			WN1704-2			WN1718-1			WN1739-1			WN1748-1		
QC_TYPE	FIELD BLANK			TRIP BLANK			TRIP BLANK			TRIP BLANK			TRIP BLANK		
% SOLIDS:	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF:															
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
VOLATILES															
1,1,1-TRICHLOROETHANE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
1,1,2,2-TETRACHLOROETHANE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
1,1,2-TRICHLOROETHANE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
1,1-DICHLOROETHANE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
1,1-DICHLOROETHENE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
1,2-DICHLOROETHANE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
1,2-DICHLOROPROPANE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
2-BUTANONE	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L
2-HEXANONE	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L
4-METHYL-2-PENTANONE	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L
ACETONE	22		UG/L	25		UG/L	7	J	UG/L	22		UG/L	15		UG/L
BENZENE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
BROMODICHLOROMETHANE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
BROMOFORM	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
BROMOMETHANE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
CARBON DISULFIDE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
CARBON TETRACHLORIDE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
CHLOROBENZENE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
CHLOROETHANE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
CHLOROFORM	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
CHLOROMETHANE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
CIS-1,3-DICHLOROPROPENE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
DIBROMOCHLOROMETHANE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
ETHYLBENZENE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
METHYLENE CHLORIDE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
STYRENE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
TETRACHLOROETHENE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
TOLUENE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
TOTAL 1,2-DICHLOROETHENE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
TRANS-1,3-DICHLOROPROPENE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
TRICHLOROETHENE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
VINYL CHLORIDE	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
XYLENES, TOTAL	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L

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SAMPLE NUMBER:	OFF-A-TP-02-0203-RB1				OFF-A-TP-04-0102-RB2				OFF-A-TP-11-0506-RB3				OFF-A-TP-13-0607-RB4				/ /			
SAMPLE DATE:	06/30/97				07/01/97				07/02/97				07/03/97							
LABORATORY ID	WN1704-3				WN1718-5				WN1739-7				WN1748-6							
QC_TYPE	RINSE BLANK				RINSE BLANK				RINSE BLANK				RINSE BLANK							
% SOLIDS	0 0 %				0 0 %				0 0 %				0 0 %				100 0 %			
FIELD DUPLICATE OF:																				
	RESULT	QUAL	UNITS		RESULT	QUAL	UNITS		RESULT	QUAL	UNITS		RESULT	QUAL	UNITS		RESULT	QUAL	UNITS	
VOLATILES																				
1,1,1-TRICHLOROETHANE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
1,1,2,2-TETRACHLOROETHANE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
1,1,2-TRICHLOROETHANE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
1,1-DICHLOROETHANE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
1,1-DICHLOROETHENE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
1,2-DICHLOROETHANE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
1,2-DICHLOROPROPANE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
2-BUTANONE	10	UJ	UG/L		10	UJ	UG/L		10	UJ	UG/L		10	UJ	UG/L					
2-HEXANONE	10	UJ	UG/L		10	UJ	UG/L		10	UJ	UG/L		10	UJ	UG/L					
4-METHYL-2-PENTANONE	10	UJ	UG/L		10	UJ	UG/L		10	UJ	UG/L		10	UJ	UG/L					
ACETONE	24		UG/L		22		UG/L		20		UG/L		17		UG/L					
BENZENE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
BROMODICHLOROMETHANE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
BROMOFORM	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
BROMOMETHANE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
CARBON DISULFIDE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
CARBON TETRACHLORIDE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
CHLOROBENZENE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
CHLOROETHANE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
CHLOROFORM	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
CHLOROMETHANE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
CIS-1,3-DICHLOROPROPENE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
DIBROMOCHLOROMETHANE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
ETHYLBENZENE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
METHYLENE CHLORIDE	10	UJ	UG/L		10	U	UG/L		10	U	UG/L		10	U	UG/L					
STYRENE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
TETRACHLOROETHENE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
TOLUENE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
TOTAL 1,2-DICHLOROETHENE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
TRANS-1,3-DICHLOROPROPENE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
TRICHLOROETHENE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
VINYL CHLORIDE	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					
XYLENES, TOTAL	10	UJ	UG/L		10	UJ	UG/L		10	U	UG/L		10	U	UG/L					

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SAMPLE NUMBER:	OFF-S-TP-02-0203	OFF-S-TP-04-0102	OFF-S-TP-05-0708	OFF-S-TP-06-0607	OFF-S-TP-07-0708
SAMPLE DATE:	06/30/97	07/01/97	07/01/97	07/01/97	07/02/97
LABORATORY ID	WN1704-1	WN1718-2	WN1718-3	WN1718-4	WN1739-2
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	96 2 %	92 7 %	89 3 %	86.5 %	86 1 %
FIELD DUPLICATE OF:					

	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
VOLATILES															
1,1,1-TRICHLOROETHANE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
1,1,2,2-TETRACHLOROETHANE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
1,1,2-TRICHLOROETHANE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
1,1-DICHLOROETHANE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
1,1-DICHLOROETHENE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
1,2-DICHLOROETHANE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
1,2-DICHLOROPROPANE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
2-BUTANONE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
2-HEXANONE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
4-METHYL-2-PENTANONE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
ACETONE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
BENZENE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
BROMODICHLOROMETHANE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
BROMOFORM	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	UJ	UG/KG
BROMOMETHANE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
CARBON DISULFIDE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
CARBON TETRACHLORIDE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
CHLOROBENZENE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
CHLOROETHANE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
CHLOROFORM	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
CHLOROMETHANE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
CIS-1,3-DICHLOROPROPENE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
DIBROMOCHLOROMETHANE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
ETHYLBENZENE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
METHYLENE CHLORIDE	10	U	UG/KG	11	U	UG/KG	11	U	UG/KG	12	U	UG/KG	57	U	UG/KG
STYRENE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
TETRACHLOROETHENE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
TOLUENE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
TOTAL 1,2-DICHLOROETHENE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
TRANS-1,3-DICHLOROPROPENE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
TRICHLOROETHENE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
VINYL CHLORIDE	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG
XYLENES, TOTAL	10	UJ	UG/KG	11	UJ	UG/KG	11	UJ	UG/KG	12	UJ	UG/KG	12	U	UG/KG

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SAMPLE NUMBER:	OFF-S-TP-08-0304		OFF-S-TP-11-0506		OFF-S-DUPL1		OFF-S-TP-12-0405		OFF-S-TP-13-0607	
SAMPLE DATE:	07/02/97		07/02/97		07/02/97		07/02/97		07/03/97	
LABORATORY ID:	WN1739-3		WN1739-4		WN1739-6		WN1739-5		WN1748-2	
QC_TYPE:	NORMAL		NORMAL		NORMAL		NORMAL		NORMAL	
% SOLIDS:	81 5 %		80 3 %		78.4 %		87 6 %		80.5 %	
FIELD DUPLICATE OF:					OFF-S-TP-11-0506					
	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS
VOLATILES										
1,1,1-TRICHLOROETHANE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
1,1,2,2-TETRACHLOROETHANE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
1,1,2-TRICHLOROETHANE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
1,1-DICHLOROETHANE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
1,1-DICHLOROETHENE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
1,2-DICHLOROETHANE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
1,2-DICHLOROPROPANE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
2-BUTANONE	12	U UG/KG	62	U UG/KG	64	UJ UG/KG	57	U UG/KG	61	U UG/KG
2-HEXANONE	12	U UG/KG	62	U UG/KG	64	UJ UG/KG	57	U UG/KG	61	U UG/KG
4-METHYL-2-PENTANONE	12	U UG/KG	62	U UG/KG	64	UJ UG/KG	57	U UG/KG	61	U UG/KG
ACETONE	12	U UG/KG	350	U UG/KG	1100	U UG/KG	110	U UG/KG	170	U UG/KG
BENZENE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
BROMODICHLOROMETHANE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
BROMOFORM	12	UJ UG/KG	62	UJ UG/KG	64	UJ UG/KG	57	UJ UG/KG	61	UJ UG/KG
BROMOMETHANE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
CARBON DISULFIDE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
CARBON TETRACHLORIDE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
CHLOROBENZENE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
CHLOROETHANE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
CHLOROFORM	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
CHLOROMETHANE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
CIS-1,3-DICHLOROPROPENE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
DIBROMOCHLOROMETHANE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
ETHYLBENZENE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
METHYLENE CHLORIDE	98	UG/KG	660	J UG/KG	1800	J UG/KG	120	U UG/KG	61	U UG/KG
STYRENE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
TETRACHLOROETHENE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
TOLUENE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
TOTAL 1,2-DICHLOROETHENE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
TRANS-1,3-DICHLOROPROPENE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
TRICHLOROETHENE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
VINYL CHLORIDE	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG
XYLENES, TOTAL	12	U UG/KG	62	U UG/KG	64	U UG/KG	57	U UG/KG	61	U UG/KG

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KATAHDIN
SDG: FTA001

SAMPLE NUMBER:	OFF-S-TP-14-0304		OFF-S-DUPL2		OFF-S-TP-15-0506		/ /		/ /	
SAMPLE DATE:	07/03/97		07/03/97		07/03/97					
LABORATORY ID:	WN1748-3		WN1748-4		WN1748-5					
QC_TYPE	NORMAL		NORMAL		NORMAL					
% SOLIDS	76.4 %		80 3 %		71 9 %		100 0 %		100 0 %	
FIELD DUPLICATE OF:			OFF-S-TP-14-0304							
	RESULT	QUAL	RESULT	QUAL	RESULT	QUAL	RESULT	QUAL	RESULT	QUAL
VOLATILES										
1,1,1-TRICHLOROETHANE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
1,1,2,2-TETRACHLOROETHANE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
1,1,2-TRICHLOROETHANE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
1,1-DICHLOROETHANE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
1,1-DICHLOROETHENE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
1,2-DICHLOROETHANE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
1,2-DICHLOROPROPANE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
2-BUTANONE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
2-HEXANONE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
4-METHYL-2-PENTANONE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
ACETONE	66	U UG/KG	63	U UG/KG	440	U UG/KG				
BENZENE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
BROMODICHLOROMETHANE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
BROMOFORM	66	UJ UG/KG	63	UJ UG/KG	70	UJ UG/KG				
BROMOMETHANE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
CARBON DISULFIDE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
CARBON TETRACHLORIDE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
CHLOROBENZENE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
CHLOROETHANE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
CHLOROFORM	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
CHLOROMETHANE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
CIS-1,3-DICHLOROPROPENE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
DIBROMOCHLOROMETHANE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
ETHYLBENZENE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
METHYLENE CHLORIDE	66	U UG/KG	63	U UG/KG	70	U UG/KG				
STYRENE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
TETRACHLOROETHENE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
TOLUENE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
TOTAL 1,2-DICHLOROETHENE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
TRANS-1,3-DICHLOROPROPENE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
TRICHLOROETHENE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
VINYL CHLORIDE	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				
XYLENES, TOTAL	66	U UG/KG	63	U UG/KG	70	UJ UG/KG				

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SOIL DATA
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SAMPLE NUMBER:	OFF-S-TP-02-0203		OFF-S-TP-04-0102		OFF-S-TP-05-0708		OFF-S-TP-06-0607		OFF-S-TP-07-0708	
SAMPLE DATE:	06/30/97		07/01/97		07/01/97		07/01/97		07/02/97	
LABORATORY ID	WN1704-1		WN1718-2		WN1718-3		WN1718-4		WN1739-2	
QC_TYPE	NORMAL		NORMAL		NORMAL		NORMAL		NORMAL	
% SOLIDS:	96 0 %		93 0 %		89 0 %		86 0 %		86 0 %	
FIELD DUPLICATE OF:										
	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS
SEMIVOLATILES										
1,2,4-TRICHLOROBENZENE	360	U UG/KG	360	UJ UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
1,2-DICHLOROBENZENE	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
1,3-DICHLOROBENZENE	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
1,4-DICHLOROBENZENE	360	U UG/KG	360	UJ UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
2,2'-OXYBIS(1-CHLOROPROPANE)	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
2,4,5-TRICHLOROPHENOL	910	U UG/KG	910	U UG/KG	910	U UG/KG	1000	U UG/KG	1000	U UG/KG
2,4,6-TRICHLOROPHENOL	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
2,4-DICHLOROPHENOL	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
2,4-DIMETHYLPHENOL	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
2,4-DINITROPHENOL	910	U UG/KG	910	U UG/KG	910	U UG/KG	1000	U UG/KG	1000	U UG/KG
2,4-DINITROTOLUENE	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
2,6-DINITROTOLUENE	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
2-CHLORONAPHTHALENE	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
2-CHLOROPHENOL	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
2-METHYLNAPHTHALENE	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
2-METHYLPHENOL	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
2-NITROANILINE	910	U UG/KG	910	U UG/KG	910	U UG/KG	1000	U UG/KG	1000	U UG/KG
2-NITROPHENOL	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
3,3'-DICHLOROBENZIDINE	360	U UG/KG	360	UJ UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
3-NITROANILINE	910	U UG/KG	910	U UG/KG	910	U UG/KG	1000	U UG/KG	1000	U UG/KG
4,6-DINITRO-2-METHYLPHENOL	910	U UG/KG	910	U UG/KG	910	U UG/KG	1000	U UG/KG	1000	U UG/KG
4-BROMOPHENYL PHENYL ETHER	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
4-CHLORO-3-METHYLPHENOL	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
4-CHLOROANILINE	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
4-CHLOROPHENYL PHENYL ETHER	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
4-METHYLPHENOL	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
4-NITROANILINE	910	U UG/KG	910	U UG/KG	910	U UG/KG	1000	U UG/KG	1000	U UG/KG
4-NITROPHENOL	910	U UG/KG	910	U UG/KG	910	U UG/KG	1000	U UG/KG	1000	U UG/KG
ACENAPHTHENE	360	U UG/KG	360	U UG/KG	190	J UG/KG	400	U UG/KG	400	U UG/KG
ACENAPHTHYLENE	360	U UG/KG	360	U UG/KG	360	U UG/KG	400	U UG/KG	400	U UG/KG
ANTHRACENE	360	U UG/KG	360	U UG/KG	420	UG/KG	400	U UG/KG	400	U UG/KG
BENZO(A)ANTHRACENE	360	U UG/KG	430	J UG/KG	840	UG/KG	610	UG/KG	350	J UG/KG
BENZO(A)PYRENE	360	U UG/KG	500	UG/KG	690	UG/KG	500	UG/KG	360	J UG/KG

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SOIL DATA
KATAHDIN
SDG: FTA001

SAMPLE NUMBER:	OFF-S-TP-02-0203	OFF-S-TP-04-0102	OFF-S-TP-05-0708	OFF-S-TP-06-0607	OFF-S-TP-07-0708
SAMPLE DATE:	06/30/97	07/01/97	07/01/97	07/01/97	07/02/97
LABORATORY ID.	WN1704-1	WN1718-2	WN1718-3	WN1718-4	WN1739-2
QC_TYPE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	96 0 %	93 0 %	89 0 %	86.0 %	86 0 %
FIELD DUPLICATE OF:					

	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS
SEMIVOLATILES					
BENZO(B)FLUORANTHENE	360 U UG/KG	290 J UG/KG	650 UG/KG	380 J UG/KG	240 J UG/KG
BENZO(G,H,I)PERYLENE	360 U UG/KG	370 UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
BENZO(K)FLUORANTHENE	360 U UG/KG	300 J UG/KG	530 UG/KG	410 UG/KG	270 J UG/KG
BIS(2-CHLOROETHOXY)METHANE	360 U UG/KG	360 U UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
BIS(2-CHLOROETHYL)ETHER	360 U UG/KG	360 U UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
BIS(2-ETHYLHEXYL)PHTHALATE	360 U UG/KG	360 UJ UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
BUTYLBENZYL PHTHALATE	360 U UG/KG	360 UJ UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
CARBAZOLE	360 U UG/KG	360 U UG/KG	170 J UG/KG	400 U UG/KG	400 U UG/KG
CHRYSENE	360 U UG/KG	500 J UG/KG	810 UG/KG	650 UG/KG	380 J UG/KG
DI-N-BUTYL PHTHALATE	360 U UG/KG	360 U UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
DI-N-OCTYL PHTHALATE	360 U UG/KG	360 U UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
DIBENZO(A,H)ANTHRACENE	360 U UG/KG	360 U UG/KG	180 J UG/KG	190 J UG/KG	400 U UG/KG
DIBENZOFURAN	360 U UG/KG	360 U UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
DIETHYL PHTHALATE	360 U UG/KG	360 U UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
DIMETHYL PHTHALATE	360 U UG/KG	360 U UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
FLUORANTHENE	360 U UG/KG	600 UG/KG	1700 UG/KG	860 UG/KG	520 UG/KG
FLUORENE	360 U UG/KG	360 U UG/KG	160 J UG/KG	400 U UG/KG	400 U UG/KG
HEXACHLOROBENZENE	360 U UG/KG	360 U UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
HEXACHLOROBUTADIENE	360 U UG/KG	360 U UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
HEXACHLOROCYCLOPENTADIENE	360 U UG/KG	360 U UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
HEXACHLOROETHANE	360 U UG/KG	360 U UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
INDENO(1,2,3-CD)PYRENE	360 U UG/KG	320 J UG/KG	520 UG/KG	350 J UG/KG	280 J UG/KG
ISOPHORONE	360 U UG/KG	360 U UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
N-NITROSO-DI-N-PROPYLAMINE	360 U UG/KG	360 U UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
N-NITROSODIPHENYLAMINE	360 U UG/KG	360 U UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
NAPHTHALENE	360 U UG/KG	360 U UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
NITROBENZENE	360 U UG/KG	360 U UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
PENTACHLOROPHENOL	910 U UG/KG	910 UJ UG/KG	910 U UG/KG	1000 U UG/KG	1000 U UG/KG
PHENANTHRENE	360 U UG/KG	840 J UG/KG	1800 UG/KG	1300 UG/KG	510 UG/KG
PHENOL	360 U UG/KG	360 U UG/KG	360 U UG/KG	400 U UG/KG	400 U UG/KG
PYRENE	360 U UG/KG	1300 J UG/KG	1700 UG/KG	1800 UG/KG	800 UG/KG

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SOIL DATA
KATAHDIN
SDG: FTA001

SAMPLE NUMBER:	OFF-S-TP-08-0304		OFF-S-TP-11-0506		OFF-S-DUPL1		OFF-S-TP-12-0405		OFF-S-TP-13-0607	
SAMPLE DATE:	07/02/97		07/02/97		07/02/97		07/02/97		07/03/97	
LABORATORY ID	WN1739-3		WN1739-4		WN1739-6		WN1739-5		WN1748-2	
QC_TYPE	NORMAL		NORMAL		NORMAL		NORMAL		NORMAL	
% SOLIDS	82 0 %		80.0 %		78.4 %		88.0 %		81 0 %	
FIELD DUPLICATE OF:					OFF-S-TP-11-0506					
	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS
SEMIVOLATILES										
1,2,4-TRICHLOROBENZENE	400	U UG/KG	400	UR UG/KG	430	UJ UG/KG	360	U UG/KG	400	UJ UG/KG
1,2-DICHLOROBENZENE	400	U UG/KG	400	U UG/KG	430	U UG/KG	360	U UG/KG	400	U UG/KG
1,3-DICHLOROBENZENE	400	U UG/KG	400	U UG/KG	430	U UG/KG	360	U UG/KG	400	U UG/KG
1,4-DICHLOROBENZENE	400	U UG/KG	400	U UG/KG	430	U UG/KG	360	U UG/KG	400	U UG/KG
2,2'-OXYBIS(1-CHLOROPROPANE)	400	U UG/KG	400	U UG/KG	430	U UG/KG	360	U UG/KG	400	U UG/KG
2,4,5-TRICHLOROPHENOL	1000	U UG/KG	1000	UR UG/KG	1100	UJ UG/KG	910	UJ UG/KG	1000	UJ UG/KG
2,4,6-TRICHLOROPHENOL	400	U UG/KG	400	UR UG/KG	430	UJ UG/KG	360	UJ UG/KG	400	UJ UG/KG
2,4-DICHLOROPHENOL	400	U UG/KG	400	UR UG/KG	430	UJ UG/KG	360	U UG/KG	400	U UG/KG
2,4-DIMETHYLPHENOL	400	U UG/KG	400	UR UG/KG	430	UJ UG/KG	360	U UG/KG	400	U UG/KG
2,4-DINITROPHENOL	1000	U UG/KG	1000	UR UG/KG	1100	UJ UG/KG	910	UJ UG/KG	1000	UJ UG/KG
2,4-DINITROTOLUENE	400	U UG/KG	400	UR UG/KG	430	UJ UG/KG	360	UJ UG/KG	400	UJ UG/KG
2,6-DINITROTOLUENE	400	U UG/KG	400	UR UG/KG	430	UJ UG/KG	360	UJ UG/KG	400	UJ UG/KG
2-CHLORONAPHTHALENE	400	U UG/KG	400	UR UG/KG	430	UJ UG/KG	360	UJ UG/KG	400	UJ UG/KG
2-CHLOROPHENOL	400	U UG/KG	400	U UG/KG	430	U UG/KG	360	U UG/KG	400	U UG/KG
2-METHYLNAPHTHALENE	400	U UG/KG	3700	J UG/KG	3300	J UG/KG	360	U UG/KG	400	U UG/KG
2-METHYLPHENOL	400	U UG/KG	400	U UG/KG	430	U UG/KG	360	U UG/KG	400	U UG/KG
2-NITROANILINE	1000	U UG/KG	1000	UR UG/KG	1100	UJ UG/KG	910	UJ UG/KG	1000	UJ UG/KG
2-NITROPHENOL	400	U UG/KG	400	UR UG/KG	430	UJ UG/KG	360	U UG/KG	400	U UG/KG
3,3'-DICHLOROBENZIDINE	400	U UG/KG	400	UJ UG/KG	430	UJ UG/KG	360	UJ UG/KG	400	UJ UG/KG
3-NITROANILINE	1000	U UG/KG	1000	UR UG/KG	1100	UJ UG/KG	910	UJ UG/KG	1000	UJ UG/KG
4,6-DINITRO-2-METHYLPHENOL	1000	U UG/KG	1000	UR UG/KG	1100	UR UG/KG	910	UJ UG/KG	1000	UJ UG/KG
4-BROMOPHENYL PHENYL ETHER	400	U UG/KG	400	UR UG/KG	430	UJ UG/KG	360	UJ UG/KG	400	UJ UG/KG
4-CHLORO-3-METHYLPHENOL	400	U UG/KG	400	UR UG/KG	430	UJ UG/KG	360	U UG/KG	400	UJ UG/KG
4-CHLOROANILINE	400	U UG/KG	400	UR UG/KG	430	UJ UG/KG	360	U UG/KG	400	U UG/KG
4-CHLOROPHENYL PHENYL ETHER	400	U UG/KG	400	UR UG/KG	430	UR UG/KG	360	UJ UG/KG	400	UJ UG/KG
4-METHYLPHENOL	400	U UG/KG	400	U UG/KG	430	U UG/KG	360	U UG/KG	400	U UG/KG
4-NITROANILINE	1000	U UG/KG	1000	UR UG/KG	1100	UJ UG/KG	910	UJ UG/KG	1000	UJ UG/KG
4-NITROPHENOL	1000	U UG/KG	1000	UR UG/KG	1100	U UG/KG	910	UJ UG/KG	1000	UJ UG/KG
ACENAPHTHENE	400	U UG/KG	400	UR UG/KG	430	UJ UG/KG	1900	J UG/KG	400	UJ UG/KG
ACENAPHTHYLENE	400	U UG/KG	400	UR UG/KG	430	UJ UG/KG	360	UJ UG/KG	400	UJ UG/KG
ANTHRACENE	400	U UG/KG	1500	J UG/KG	740	J UG/KG	700	J UG/KG	400	UJ UG/KG
BENZO(A)ANTHRACENE	170	J UG/KG	580	J UG/KG	270	J UG/KG	360	U UG/KG	230	J UG/KG
BENZO(A)PYRENE	400	U UG/KG	350	J UG/KG	220	J UG/KG	360	U UG/KG	200	J UG/KG

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SOIL DATA
KATAHDIN
SDG: FTA001

SAMPLE NUMBER:	OFF-S-TP-08-0304	OFF-S-TP-11-0506	OFF-S-DUPL1	OFF-S-TP-12-0405	OFF-S-TP-13-0607
SAMPLE DATE:	07/02/97	07/02/97	07/02/97	07/02/97	07/03/97
LABORATORY ID	WN1739-3	WN1739-4	WN1739-6	WN1739-5	WN1748-2
QC_TYPE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS	82 0 %	80.0 %	78.4 %	88 0 %	81 0 %
FIELD DUPLICATE OF:			OFF-S-TP-11-0506		

	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS
SEMIVOLATILES					
BENZO(B)FLUORANTHENE	400 U UG/KG	430 UG/KG	180 J UG/KG	360 U UG/KG	400 U UG/KG
BENZO(G,H,I)PERYLENE	400 U UG/KG	400 U UG/KG	430 U UG/KG	360 U UG/KG	400 U UG/KG
BENZO(K)FLUORANTHENE	400 U UG/KG	490 UG/KG	240 J UG/KG	360 U UG/KG	400 U UG/KG
BIS(2-CHLOROETHOXY)METHANE	400 U UG/KG	400 UR UG/KG	430 UJ UG/KG	360 U UG/KG	400 U UG/KG
BIS(2-CHLOROETHYL)ETHER	400 U UG/KG	400 U UG/KG	430 U UG/KG	360 U UG/KG	400 U UG/KG
BIS(2-ETHYLHEXYL)PHTHALATE	400 U UG/KG	400 UJ UG/KG	430 UJ UG/KG	360 UJ UG/KG	400 U UG/KG
BUTYLBENZYL PHTHALATE	400 U UG/KG	400 U UG/KG	430 U UG/KG	360 U UG/KG	400 U UG/KG
CARBAZOLE	400 U UG/KG	400 UR UG/KG	430 UR UG/KG	360 UJ UG/KG	400 UJ UG/KG
CHRYSENE	160 J UG/KG	460 J UG/KG	370 J UG/KG	170 J UG/KG	280 J UG/KG
DI-N-BUTYL PHTHALATE	400 U UG/KG	400 U UG/KG	430 UR UG/KG	360 UJ UG/KG	400 UJ UG/KG
DI-N-OCTYL PHTHALATE	400 U UG/KG	400 U UG/KG	430 UJ UG/KG	360 UJ UG/KG	400 U UG/KG
DIBENZO(A,H)ANTHRACENE	400 U UG/KG	400 U UG/KG	430 U UG/KG	360 U UG/KG	400 U UG/KG
DIBENZOFURAN	400 U UG/KG	400 U UG/KG	1800 J UG/KG	1100 J UG/KG	400 UJ UG/KG
DIETHYL PHTHALATE	400 U UG/KG	400 U UG/KG	430 UJ UG/KG	360 UJ UG/KG	400 UJ UG/KG
DIMETHYL PHTHALATE	400 U UG/KG	400 U UG/KG	430 UJ UG/KG	360 UJ UG/KG	400 U UG/KG
FLUORANTHENE	240 J UG/KG	2000 J UG/KG	1000 J UG/KG	650 J UG/KG	750 J UG/KG
FLUORENE	400 UJ UG/KG	3400 J UG/KG	2600 J UG/KG	2600 J UG/KG	400 UJ UG/KG
HEXACHLOROBENZENE	400 U UG/KG	400 U UG/KG	430 UR UG/KG	360 UJ UG/KG	400 UJ UG/KG
HEXACHLOROBUTADIENE	400 U UG/KG	400 U UG/KG	430 UJ UG/KG	360 U UG/KG	400 U UG/KG
HEXACHLOROCYCLOPENTADIENE	400 U UG/KG	400 U UG/KG	430 UJ UG/KG	360 UJ UG/KG	400 UJ UG/KG
HEXACHLOROETHANE	400 U UG/KG	400 U UG/KG	430 U UG/KG	360 U UG/KG	400 U UG/KG
INDENO(1,2,3-CD)PYRENE	400 U UG/KG	350 J UG/KG	260 J UG/KG	360 U UG/KG	400 U UG/KG
ISOPHORONE	400 U UG/KG	400 UR UG/KG	430 UJ UG/KG	360 U UG/KG	400 U UG/KG
N-NITROSO-DI-N-PROPYLAMINE	400 U UG/KG	400 UR UG/KG	430 UR UG/KG	360 U UG/KG	400 U UG/KG
N-NITROSODIPHENYLAMINE	400 U UG/KG	400 U UG/KG	430 UJ UG/KG	360 UJ UG/KG	400 UJ UG/KG
NAPHTHALENE	400 U UG/KG	4000 UG/KG	3500 UG/KG	360 U UG/KG	400 U UG/KG
NITROBENZENE	400 U UG/KG	400 UR UG/KG	430 UJ UG/KG	360 U UG/KG	400 U UG/KG
PENTACHLOROPHENOL	1000 U UG/KG	1000 U UG/KG	1100 U UG/KG	910 UJ UG/KG	1000 UJ UG/KG
PHENANTHRENE	200 J UG/KG	4900 J UG/KG	3200 UG/KG	3600 J UG/KG	400 UJ UG/KG
PHENOL	400 U UG/KG	400 U UG/KG	430 U UG/KG	360 U UG/KG	400 U UG/KG
PYRENE	330 J UG/KG	710 J UG/KG	300 J UG/KG	360 UG/KG	710 UG/KG

NETC NEWPORT CTO 288
SOIL DATA
KATAHDIN
SDG: FTA001

SAMPLE NUMBER:	OFF-S-TP-14-0304		OFF-S-DUPL2		OFF-S-TP-15-0506		/ /		/ /	
SAMPLE DATE:	07/03/97		07/03/97		07/03/97					
LABORATORY ID	WN1748-3		WN1748-4		WN1748-5					
QC_TYPE	NORMAL		NORMAL		NORMAL					
% SOLIDS.	76 0 %		80.0 %		72 0 %		100.0 %		100 0 %	
FIELD DUPLICATE OF:			OFF-S-TP-14-0304							
	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS
SEMIVOLATILES										
1,2,4-TRICHLOROBENZENE	430	U UG/KG	400	U UG/KG	460	U UG/KG				
1,2-DICHLOROBENZENE	430	U UG/KG	400	U UG/KG	460	U UG/KG				
1,3-DICHLOROBENZENE	430	U UG/KG	400	U UG/KG	460	U UG/KG				
1,4-DICHLOROBENZENE	430	U UG/KG	400	U UG/KG	460	U UG/KG				
2,2'-OXYBIS(1-CHLOROPROPANE)	430	U UG/KG	400	U UG/KG	460	U UG/KG				
2,4,5-TRICHLOROPHENOL	1100	UJ UG/KG	1000	UJ UG/KG	1200	UR UG/KG				
2,4,6-TRICHLOROPHENOL	430	UJ UG/KG	400	UJ UG/KG	460	UR UG/KG				
2,4-DICHLOROPHENOL	430	U UG/KG	400	U UG/KG	460	U UG/KG				
2,4-DIMETHYLPHENOL	430	U UG/KG	400	U UG/KG	460	U UG/KG				
2,4-DINITROPHENOL	1100	UJ UG/KG	1000	UJ UG/KG	1200	UR UG/KG				
2,4-DINITROTOLUENE	430	UJ UG/KG	400	UJ UG/KG	460	UR UG/KG				
2,6-DINITROTOLUENE	430	UJ UG/KG	400	UJ UG/KG	460	UR UG/KG				
2-CHLORONAPHTHALENE	430	UJ UG/KG	400	UJ UG/KG	460	UR UG/KG				
2-CHLOROPHENOL	430	U UG/KG	400	U UG/KG	460	U UG/KG				
2-METHYLNAPHTHALENE	430	UJ UG/KG	400	U UG/KG	1300	J UG/KG	400			
2-METHYLPHENOL	430	U UG/KG	400	U UG/KG	460	U UG/KG				
2-NITROANILINE	1100	UJ UG/KG	1000	UJ UG/KG	1200	UR UG/KG				
2-NITROPHENOL	430	U UG/KG	400	U UG/KG	460	U UG/KG				
3,3'-DICHLOROBENZIDINE	430	UJ UG/KG	400	UJ UG/KG	460	UJ UG/KG				
3-NITROANILINE	1100	UJ UG/KG	1000	UJ UG/KG	1200	UR UG/KG				
4,6-DINITRO-2-METHYLPHENOL	1100	UR UG/KG	1000	UJ UG/KG	1200	UR UG/KG				
4-BROMOPHENYL PHENYL ETHER	430	U UG/KG	400	UJ UG/KG	460	UR UG/KG				
4-CHLORO-3-METHYLPHENOL	430	U UG/KG	400	U UG/KG	460	U UG/KG				
4-CHLOROANILINE	430	U UG/KG	400	U UG/KG	460	U UG/KG				
4-CHLOROPHENYL PHENYL ETHER	430	UJ UG/KG	400	UJ UG/KG	460	UR UG/KG				
4-METHYLPHENOL	430	U UG/KG	400	U UG/KG	460	U UG/KG				
4-NITROANILINE	1100	UJ UG/KG	1000	UJ UG/KG	1200	UR UG/KG				
4-NITROPHENOL	1100	U UG/KG	1000	U UG/KG	1200	U UG/KG				
ACENAPHTHENE	430	UJ UG/KG	400	UJ UG/KG	4900	UG/KG				
ACENAPHTHYLENE	430	UJ UG/KG	400	UJ UG/KG	460	UR UG/KG				
ANTHRACENE	430	UR UG/KG	400	UJ UG/KG	2200	J UG/KG	10,000,000			
BENZO(A)ANTHRACENE	430	U UG/KG	400	U UG/KG	1200	J UG/KG				
BENZO(A)PYRENE	430	U UG/KG	400	U UG/KG	970	J UG/KG	800			

NETC NEWPORT CTO 288
SOIL DATA
KATAHDIN
SDG: FTA001

SAMPLE NUMBER:	OFF-S-TP-14-0304		OFF-S-DUPL2		OFF-S-TP-15-0506		/ /		/ /	
SAMPLE DATE:	07/03/97		07/03/97		07/03/97					
LABORATORY ID:	WN1748-3		WN1748-4		WN1748-5					
QC_TYPE:	NORMAL		NORMAL		NORMAL					
% SOLIDS:	76 0 %		80 0 %		72 0 %		100.0 %		100.0 %	
FIELD DUPLICATE OF:			OFF-S-TP-14-0304							
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT QUAL UNITS
SEMIVOLATILES										
BENZO(B)FLUORANTHENE	430	U	UG/KG	400	U	UG/KG	610	J	UG/KG	7800
BENZO(G,H,I)PERYLENE	430	U	UG/KG	400	U	UG/KG	460	UJ	UG/KG	
BENZO(K)FLUORANTHENE	430	U	UG/KG	400	U	UG/KG	730	J	UG/KG	78000
BIS(2-CHLOROETHOXY)METHANE	430	U	UG/KG	400	U	UG/KG	460	U	UG/KG	
BIS(2-CHLOROETHYL)ETHER	430	U	UG/KG	400	U	UG/KG	460	U	UG/KG	
BIS(2-ETHYLHEXYL)PHTHALATE	430	UJ	UG/KG	400	UJ	UG/KG	460	UJ	UG/KG	
BUTYLBENZYL PHTHALATE	430	U	UG/KG	400	U	UG/KG	460	UJ	UG/KG	
CARBAZOLE	430	UR	UG/KG	400	UJ	UG/KG	460	UR	UG/KG	
CHRYSENE	430	U	UG/KG	170	J	UG/KG	1700	J	UG/KG	780,000
DI-N-BUTYL PHTHALATE	430	UR	UG/KG	400	UJ	UG/KG	460	UR	UG/KG	
DI-N-OCTYL PHTHALATE	430	UJ	UG/KG	400	UJ	UG/KG	460	UJ	UG/KG	
DIBENZO(A,H)ANTHRACENE	430	U	UG/KG	400	U	UG/KG	460	UJ	UG/KG	
DIBENZOFURAN	430	UJ	UG/KG	400	UJ	UG/KG	4000		UG/KG	
DIETHYL PHTHALATE	430	UJ	UG/KG	400	UJ	UG/KG	460	UR	UG/KG	
DIMETHYL PHTHALATE	430	U	UG/KG	400	UJ	UG/KG	460	UR	UG/KG	
FLUORANTHENE	340	J	UG/KG	320	J	UG/KG	3600	J	UG/KG	10,000,000
FLUORENE	430	UJ	UG/KG	400	UJ	UG/KG	1900	J	UG/KG	
HEXACHLOROBENZENE	430	UR	UG/KG	400	UJ	UG/KG	460	UR	UG/KG	
HEXACHLOROBUTADIENE	430	U	UG/KG	400	U	UG/KG	460	U	UG/KG	
HEXACHLOROCYCLOPENTADIENE	430	UJ	UG/KG	400	UJ	UG/KG	460	UR	UG/KG	
HEXACHLOROETHANE	430	U	UG/KG	400	U	UG/KG	460	U	UG/KG	
INDENO(1,2,3-CD)PYRENE	430	U	UG/KG	180	J	UG/KG	800	J	UG/KG	7800
ISOPHORONE	430	U	UG/KG	400	U	UG/KG	460	U	UG/KG	
N-NITROSO-DI-N-PROPYLAMINE	430	U	UG/KG	400	UJ	UG/KG	460	U	UG/KG	
N-NITROSODIPHENYLAMINE	430	U	UG/KG	400	U	UG/KG	460	UR	UG/KG	
NAPHTHALENE	430	U	UG/KG	400	U	UG/KG	1300		UG/KG	
NITROBENZENE	430	U	UG/KG	400	U	UG/KG	460	U	UG/KG	
PENTACHLOROPHENOL	1100	UR	UG/KG	1000	UJ	UG/KG	1200	UR	UG/KG	
PHENANTHRENE	430	UR	UG/KG	520	J	UG/KG	14000		UG/KG	
PHENOL	430	U	UG/KG	400	U	UG/KG	460	U	UG/KG	
PYRENE	280	J	UG/KG	310	J	UG/KG	2700	J	UG/KG	10,000

CTO288 - NETC NEWPORT
WATER DATA
KATAHDIN
SDG: FTA001

SAMPLE NUMBER:	OFF-A-FB1				OFF-A-TP-02-0203-RB				OFF-A-TP-04-0102-RB				OFF-A-TP-11-0506-RB				OFF-A-TP-13-0607-RB4			
SAMPLE DATE:	07/01/97				06/30/97				07/01/97				07/02/97				07/03/97			
LABORATORY ID:	WN1718-6				WN1704-3				WN1718-5				WN1739-7				WN1748-6			
QC_TYPE:	FIELD BLANK				RINSE BLANK				RINSE BLANK				RINSE BLANK				RINSE BLANK			
% SOLIDS:	0.0 %				0.0 %				0.0 %				0.0 %				0.0 %			
FIELD DUPLICATE OF:																				
	RESULT	QUAL	UNITS		RESULT	QUAL	UNITS		RESULT	QUAL	UNITS		RESULT	QUAL	UNITS		RESULT	QUAL	UNITS	
PESTICIDES/PCBs																				
4,4'-DDD	0.10	U	UG/L		0.10	U	UG/L		0.10	U	UG/L		0.11	U	UG/L		0.11	U	UG/L	
4,4'-DDE	0.10	U	UG/L		0.10	U	UG/L		0.10	U	UG/L		0.11	U	UG/L		0.11	U	UG/L	
4,4'-DDT	0.10	U	UG/L		0.10	U	UG/L		0.10	U	UG/L		0.11	U	UG/L		0.11	U	UG/L	
ALDRIN	0.052	U	UG/L		0.052	U	UG/L		0.052	U	UG/L		0.055	U	UG/L		0.054	U	UG/L	
ALPHA-BHC	0.052	U	UG/L		0.052	U	UG/L		0.052	U	UG/L		0.055	U	UG/L		0.054	U	UG/L	
ALPHA-CHLORDANE	0.052	U	UG/L		0.052	U	UG/L		0.052	U	UG/L		0.055	U	UG/L		0.054	U	UG/L	
AROCLOR-1016	1.0	U	UG/L		1.0	U	UG/L		1.0	U	UG/L		1.1	U	UG/L		1.1	U	UG/L	
AROCLOR-1221	2.1	U	UG/L		2.1	U	UG/L		2.1	U	UG/L		2.2	U	UG/L		2.2	U	UG/L	
AROCLOR-1232	1.0	U	UG/L		1.0	U	UG/L		1.0	U	UG/L		1.1	U	UG/L		1.1	U	UG/L	
AROCLOR-1242	1.0	U	UG/L		1.0	U	UG/L		1.0	U	UG/L		1.1	U	UG/L		1.1	U	UG/L	
AROCLOR-1248	1.0	U	UG/L		1.0	U	UG/L		1.0	U	UG/L		1.1	U	UG/L		1.1	U	UG/L	
AROCLOR-1254	1.0	U	UG/L		1.0	U	UG/L		1.0	U	UG/L		1.1	U	UG/L		1.1	U	UG/L	
AROCLOR-1260	1.0	U	UG/L		1.0	U	UG/L		1.0	U	UG/L		1.1	U	UG/L		1.1	U	UG/L	
BETA-BHC	0.052	U	UG/L		0.052	U	UG/L		0.052	U	UG/L		0.055	U	UG/L		0.054	U	UG/L	
DELTA-BHC	0.052	U	UG/L		0.052	U	UG/L		0.052	U	UG/L		0.055	U	UG/L		0.054	U	UG/L	
DIELDRIN	0.10	U	UG/L		0.10	U	UG/L		0.10	U	UG/L		0.11	U	UG/L		0.11	U	UG/L	
ENDOSULFAN I	0.052	U	UG/L		0.052	U	UG/L		0.052	U	UG/L		0.055	U	UG/L		0.054	U	UG/L	
ENDOSULFAN II	0.10	U	UG/L		0.10	U	UG/L		0.10	U	UG/L		0.11	U	UG/L		0.11	U	UG/L	
ENDOSULFAN SULFATE	0.10	U	UG/L		0.10	U	UG/L		0.10	U	UG/L		0.11	U	UG/L		0.11	U	UG/L	
ENDRIN	0.10	U	UG/L		0.10	U	UG/L		0.10	U	UG/L		0.11	U	UG/L		0.11	U	UG/L	
ENDRIN ALDEHYDE	0.10	U	UG/L		0.10	U	UG/L		0.10	U	UG/L		0.11	U	UG/L		0.11	U	UG/L	
ENDRIN KETONE	0.10	U	UG/L		0.10	U	UG/L		0.10	U	UG/L		0.11	U	UG/L		0.11	U	UG/L	
GAMMA-BHC (LINDANE)	0.052	U	UG/L		0.052	U	UG/L		0.052	U	UG/L		0.055	U	UG/L		0.054	U	UG/L	
GAMMA-CHLORDANE	0.052	U	UG/L		0.052	U	UG/L		0.052	U	UG/L		0.055	U	UG/L		0.054	U	UG/L	
HEPTACHLOR	0.052	U	UG/L		0.052	U	UG/L		0.052	U	UG/L		0.055	U	UG/L		0.054	U	UG/L	
HEPTACHLOR EPOXIDE	0.052	U	UG/L		0.052	U	UG/L		0.052	U	UG/L		0.055	U	UG/L		0.054	U	UG/L	
METHOXYCHLOR	0.52	U	UG/L		0.52	U	UG/L		0.52	U	UG/L		0.55	U	UG/L		0.54	U	UG/L	
TOXAPHENE	5.2	U	UG/L		5.2	U	UG/L		5.2	U	UG/L		5.5	U	UG/L		5.4	U	UG/L	

CTO288 - NETC NEWPORT
SOIL DATA
KATAHDIN
SDG: FTA001

SAMPLE NUMBER:	OFF-S-TP-02-0203		OFF-S-TP-04-0102		OFF-S-TP-05-0708		OFF-S-TP-06-0607		OFF-S-TP-07-0708	
SAMPLE DATE:	06/30/97		07/01/97		07/01/97		07/01/97		07/02/97	
LABORATORY ID:	WN1704-1		WN1718-2		WN1718-3		WN1718-4		WN1739-2	
QC_TYPE:	NORMAL		NORMAL		NORMAL		NORMAL		NORMAL	
% SOLIDS:	96.0 %		93.0 %		89.0 %		86.0 %		86.0 %	
FIELD DUPLICATE OF:										
	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS
PESTICIDES/PCBs										
4,4'-DDD	3.4	U UG/KG	3.5	U UG/KG	3.7	U UG/KG	3.8	U UG/KG	3.8	U UG/KG
4,4'-DDE	3.4	U UG/KG	18	UG/KG	3.7	U UG/KG	3.8	U UG/KG	3.8	U UG/KG
4,4'-DDT	3.4	U UG/KG	120	J UG/KG	3.7	U UG/KG	3.8	U UG/KG	3.8	U UG/KG
ALDRIN	1.8	U UG/KG	1.8	U UG/KG	1.9	U UG/KG	2.0	U UG/KG	2.0	U UG/KG
ALPHA-BHC	1.8	U UG/KG	1.8	U UG/KG	1.9	U UG/KG	2.0	U UG/KG	2.0	U UG/KG
ALPHA-CHLORDANE	1.8	U UG/KG	1.8	U UG/KG	1.9	U UG/KG	2.0	U UG/KG	2.0	U UG/KG
AROCLOR-1016	34	U UG/KG	35	U UG/KG	37	U UG/KG	38	U UG/KG	38	U UG/KG
AROCLOR-1221	70	U UG/KG	72	U UG/KG	75	U UG/KG	78	U UG/KG	78	U UG/KG
AROCLOR-1232	34	U UG/KG	35	U UG/KG	37	U UG/KG	38	U UG/KG	38	U UG/K
AROCLOR-1242	34	U UG/KG	35	U UG/KG	37	U UG/KG	38	U UG/KG	38	U UG/KG
AROCLOR-1248	34	U UG/KG	35	U UG/KG	37	U UG/KG	38	U UG/KG	38	U UG/KG
AROCLOR-1254	34	U UG/KG	120	UG/KG	37	U UG/KG	38	U UG/KG	38	U UG/KG
AROCLOR-1260	34	U UG/KG	35	U UG/KG	37	U UG/KG	38	U UG/KG	38	U UG/KG
BETA-BHC	1.8	U UG/KG	1.8	U UG/KG	1.9	U UG/KG	2.0	U UG/KG	2.0	U UG/KG
DELTA-BHC	1.8	U UG/KG	1.8	U UG/KG	1.9	U UG/KG	2.0	U UG/KG	2.0	U UG/KG
DIELDRIN	3.4	U UG/KG	3.5	U UG/KG	3.7	U UG/KG	3.8	U UG/KG	3.8	U UG/KG
ENDOSULFAN I	1.8	U UG/KG	1.8	U UG/KG	1.9	U UG/KG	2.0	U UG/KG	2.0	U UG/KG
ENDOSULFAN II	3.4	U UG/KG	3.5	U UG/KG	3.7	U UG/KG	3.8	U UG/KG	3.8	U UG/KG
ENDOSULFAN SULFATE	3.4	U UG/KG	3.5	U UG/KG	3.7	U UG/KG	3.8	U UG/KG	3.8	U UG/KG
ENDRIN	3.4	U UG/KG	3.5	U UG/KG	3.7	U UG/KG	3.8	U UG/KG	3.8	U UG/KG
ENDRIN ALDEHYDE	3.4	U UG/KG	3.5	U UG/KG	3.7	U UG/KG	3.8	U UG/KG	3.8	U UG/KG
ENDRIN KETONE	3.4	U UG/KG	3.5	U UG/KG	3.7	U UG/KG	3.8	U UG/KG	3.8	U UG/KG
GAMMA-BHC (LINDANE)	1.8	U UG/KG	1.8	U UG/KG	1.9	U UG/KG	2.0	U UG/KG	2.0	U UG/KG
GAMMA-CHLORDANE	1.8	U UG/KG	1.8	U UG/KG	1.9	U UG/KG	2.0	U UG/KG	2.0	U UG/KG
HEPTACHLOR	1.8	U UG/KG	1.8	U UG/KG	1.9	U UG/KG	2.0	U UG/KG	2.0	U UG/KG
HEPTACHLOR EPOXIDE	1.8	J UG/KG	1.8	U UG/KG	1.9	U UG/KG	2.0	U UG/KG	2.0	U UG/KG
METHOXYCHLOR	18	U UG/KG	18	U UG/KG	19	U UG/KG	20	U UG/KG	20	U UG/KG
TOXAPHENE	180	U UG/KG	180	U UG/KG	190	U UG/KG	200	U UG/KG	200	U UG/KG

CTO288 - NETC NEWP RT
SOIL DATA
KATAHDIN
SDG: FTA001

SAMPLE NUMBER:	OFF-S-TP-08-0304	OFF-S-TP-11-0506	OFF-S-DUPL1	OFF-S-TP-12-0405	OFF-S-TP-13-0607
SAMPLE DATE:	07/02/97	07/02/97	07/02/97	07/02/97	07/03/97
LABORATORY ID:	WN1739-3	WN1739-4	WN1739-6	WN1739-5	WN1748-2
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	82.0 %	80.0 %	78.0 %	88.0 %	81.0 %
FIELD DUPLICATE OF:			OFF-S-TP-11-0506		

	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
PESTICIDES/PCBs															
4,4'-DDD	4.0	U	UG/KG	2.1	U	UG/KG	4.0	U	UG/KG	3.8	U	UG/KG	4.1	U	UG/KG
4,4'-DDE	4.0	U	UG/KG	2.1	U	UG/KG	4.0	U	UG/KG	3.8	U	UG/KG	4.1	U	UG/KG
4,4'-DDT	4.0	U	UG/KG	2.1	U	UG/KG	4.0	U	UG/KG	3.8	U	UG/KG	4.1	U	UG/KG
ALDRIN	2.1	U	UG/KG	1.1	U	UG/KG	2.1	U	UG/KG	1.9	U	UG/KG	2.1	UJ	UG/KG
ALPHA-BHC	2.1	U	UG/KG	1.2		UG/KG	2.1	U	UG/KG	1.9	U	UG/KG	2.1	U	UG/KG
ALPHA-CHLORDANE	2.1	U	UG/KG	1.1	U	UG/KG	2.1	U	UG/KG	1.9	U	UG/KG	2.1	U	UG/KG
AROCLOR-1016	40	U	UG/KG	21	U	UG/KG	40	U	UG/KG	38	U	UG/KG	41	U	UG/KG
AROCLOR-1221	82	U	UG/KG	42	U	UG/KG	82	U	UG/KG	76	U	UG/KG	83	U	UG/KG
AROCLOR-1232	40	U	UG/KG	21	U	UG/KG	40	U	UG/KG	38	U	UG/KG	41	U	UG/KG
AROCLOR-1242	40	U	UG/KG	21	U	UG/KG	40	U	UG/KG	38	U	UG/KG	41	U	UG/KG
AROCLOR-1248	40	U	UG/KG	21	U	UG/KG	40	U	UG/KG	38	U	UG/KG	41	U	UG/KG
AROCLOR-1254	40	U	UG/KG	21	U	UG/KG	40	U	UG/KG	38	U	UG/KG	41	U	UG/KG
AROCLOR-1260	40	U	UG/KG	21	U	UG/KG	40	U	UG/KG	38	U	UG/KG	41	U	UG/KG
BETA-BHC	2.1	U	UG/KG	1.1	U	UG/KG	2.1	U	UG/KG	1.9	U	UG/KG	2.1	U	UG/KG
DELTA-BHC	2.1	U	UG/KG	1.1	U	UG/KG	2.1	U	UG/KG	1.9	U	UG/KG	2.1	U	UG/KG
DIELDRIN	4.0	U	UG/KG	2.1	U	UG/KG	4.0	U	UG/KG	3.8	U	UG/KG	4.1	U	UG/KG
ENDOSULFAN I	2.1	U	UG/KG	1.1	U	UG/KG	2.1	U	UG/KG	1.9	U	UG/KG	2.1	U	UG/KG
ENDOSULFAN II	4.0	U	UG/KG	2.1	U	UG/KG	4.0	U	UG/KG	3.8	U	UG/KG	4.1	U	UG/KG
ENDOSULFAN SULFATE	4.0	U	UG/KG	2.1	U	UG/KG	4.0	U	UG/KG	3.8	U	UG/KG	4.1	U	UG/KG
ENDRIN	4.0	U	UG/KG	2.1	U	UG/KG	4.0	U	UG/KG	3.8	U	UG/KG	4.1	U	UG/KG
ENDRIN ALDEHYDE	4.0	U	UG/KG	2.1	U	UG/KG	4.0	U	UG/KG	3.8	U	UG/KG	4.1	U	UG/KG
ENDRIN KETONE	4.0	U	UG/KG	2.1	U	UG/KG	4.0	U	UG/KG	3.8	U	UG/KG	4.1	U	UG/KG
GAMMA-BHC (LINDANE)	2.1	U	UG/KG	1.1	U	UG/KG	2.1	U	UG/KG	1.9	U	UG/KG	2.1	U	UG/KG
GAMMA-CHLORDANE	2.1	U	UG/KG	1.1	U	UG/KG	2.1	U	UG/KG	1.9	U	UG/KG	2.1	U	UG/KG
HEPTACHLOR	2.1	U	UG/KG	1.1	U	UG/KG	2.1	U	UG/KG	1.9	U	UG/KG	2.1	UJ	UG/KG
HEPTACHLOR EPOXIDE	2.1	J	UG/KG	1.1	U	UG/KG	2.1	U	UG/KG	1.9	U	UG/KG	2.1	U	UG/KG
METHOXYCHLOR	21	U	UG/KG	11	U	UG/KG	21	U	UG/KG	19	U	UG/KG	21	U	UG/KG
TOXAPHENE	210	U	UG/KG	110	U	UG/KG	210	U	UG/KG	190	U	UG/KG	210	U	UG/KG

CTO288 - NETC NEWPORT
S IL DATA
KATAHDIN
SDG: FTA001

SAMPLE NUMBER.	OFF-S-TP-14-0304		OFF-S-DUPL2		OFF-S-TP-15-0508		/ /		/ /	
SAMPLE DATE:	07/03/97		07/03/97		07/03/97					
LABORATORY ID.	WN1748-3		WN1748-4		WN1748-5					
QC_TYPE:	NORMAL		NORMAL		NORMAL					
% SOLIDS:	76.0 %		80.0 %		72.0 %		100.0 %		100.0 %	
FIELD DUPLICATE OF:			OFF-S-TP-14-0304							
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
PESTICIDES/PCBs												
4,4'-DDD	4.3	UJ	UG/KG	4.1	U	UG/KG	4.6	U	UG/KG			
4,4'-DDE	4.3	UJ	UG/KG	4.1	U	UG/KG	4.6	U	UG/KG			
4,4'-DDT	4.3	UJ	UG/KG	4.1	U	UG/KG	4.6	U	UG/KG			
ALDRIN	2.2	UJ	UG/KG	2.1	U	UG/KG	2.4	U	UG/KG			
ALPHA-BHC	2.2	UJ	UG/KG	2.1	U	UG/KG	2.4	U	UG/KG			
ALPHA-CHLORDANE	2.2	UJ	UG/KG	2.1	U	UG/KG	2.4	U	UG/KG			
AROCLOR-1016	43	UJ	UG/KG	41	U	UG/KG	46	U	UG/KG			
AROCLOR-1221	88	UJ	UG/KG	84	U	UG/KG	93	U	UG/KG			
AROCLOR-1232	43	UJ	UG/KG	41	U	UG/KG	46	U	UG/KG			
AROCLOR-1242	43	UJ	UG/KG	41	U	UG/KG	46	U	UG/KG			
AROCLOR-1248	43	UJ	UG/KG	41	U	UG/KG	46	U	UG/KG			
AROCLOR-1254	43	UJ	UG/KG	41	U	UG/KG	46	U	UG/KG			
AROCLOR-1260	43	UJ	UG/KG	41	U	UG/KG	46	U	UG/KG			
BETA-BHC	2.2	UJ	UG/KG	2.1	U	UG/KG	2.4	U	UG/KG			
DELTA-BHC	2.2	UJ	UG/KG	2.1	U	UG/KG	2.4	U	UG/KG			
DIELDRIN	4.3	UJ	UG/KG	4.1	U	UG/KG	4.6	U	UG/KG			
ENDOSULFAN I	2.2	UJ	UG/KG	2.1	U	UG/KG	2.4	U	UG/KG			
ENDOSULFAN II	4.3	UJ	UG/KG	4.1	U	UG/KG	4.6	U	UG/KG			
ENDOSULFAN SULFATE	4.3	UJ	UG/KG	4.1	U	UG/KG	4.6	U	UG/KG			
ENDRIN	4.3	UJ	UG/KG	4.1	U	UG/KG	4.6	U	UG/KG			
ENDRIN ALDEHYDE	4.3	UJ	UG/KG	4.1	U	UG/KG	4.6	U	UG/KG			
ENDRIN KETONE	4.3	UJ	UG/KG	4.1	U	UG/KG	4.6	U	UG/KG			
GAMMA-BHC (LINDANE)	2.2	UJ	UG/KG	2.1	U	UG/KG	3.0		UG/KG			
GAMMA-CHLORDANE	2.2	UJ	UG/KG	2.1	U	UG/KG	2.4	U	UG/KG			
HEPTACHLOR	2.2	UJ	UG/KG	2.1	U	UG/KG	2.4	U	UG/KG			
HEPTACHLOR EPOXIDE	5.0	J	UG/KG	4.8	J	UG/KG	2.4	U	UG/KG			
METHOXYCHLOR	22	UJ	UG/KG	21	U	UG/KG	24	U	UG/KG			
TOXAPHENE	220	UJ	UG/KG	210	U	UG/KG	240	U	UG/KG			

FTA001

TOTAL PETROLEUM HYDROCARBONS

7578-5

Brown & Root Environmental

INTERNAL CORRESPONDENCE

C-49-08-7-220

TO: **D. CONAN** **DATE:** **SEPTEMBER 15, 1997**

FROM: **TERRI L. SOLOMON** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION - TOTAL PETROLEUM HYDROCARBONS**
CTO 288 - NETC NEWPORT, NEWPORT, RHODE ISLAND
SDG - FTA001

SAMPLES: 13/Soils/

OFF-S-TP-02-0203	OFF-S-TP-04-0102	OFF-S-TP-05-0708
OFF-S-TP-06-0607	OFF-S-TP-07-0708	OFF-S-TP-08-0304
OFF-S-TP-11-0506	OFF-S-TP-12-0405	OFF-S-DUPL1
OFF-S-TP-13-0607	OFF-S-TP-14-0304	OFF-S-DUPL2
OFF-S-TP-15-0506		

6/Aqueous/

OFF-A-TP-02-0203-RB1	OFF-A-TP-04-0102-RB2	OFF-A-FB1
OFF-A-TP-11-0506-RB3	OFF-A-TP-13-0607-RB4	OFF-A-TP-12-0405

Overview

The sample set for CTO 288, NETC Newport, SDG FTA001, consists of thirteen (13) soil environmental samples, one (1) aqueous environmental sample, four rinsate blanks (OFF-A-TP-02-0203-RB1, OFF-A-TP-04-0102-RB2, OFF-A-TP-11-0506-RB3 and OFF-A-TP-13-0607-RB4) and one (1) field blank (OFF-A-FB1). Two (2) field duplicate pairs (OFF-S-TP-11-0506 / OFF-S-DUPL1 and OFF-S-TP-14-0304 / OFF-S-DUPL2) were included within this SDG.

All samples were analyzed for Total Petroleum Hydrocarbon (TPH). The samples were collected by Brown and Root Environmental on June 30, July 1, 2 and 3, 1997 and analyzed by Katahdin Analytical Services under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. All analyses were conducted using EPA method 418.1.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Verifications
* • Laboratory Blank Analyses
• Field Blank Analyses
• Matrix Spike / Matrix Spike Duplicate Results
• Laboratory Control Sample Results
• Field Duplicate Results
* • Analyte Quantitation
* • Detection Limits

* - All quality control criteria were met for this parameter.

The attached Table 1 summarizes the validation recommendations which were based on the following information:

Blank results:

The following contaminants was detected in the rinsate blank at the following maximum concentration :

Analyte	Maximum Concentration	Action Level (aqueous)	Action Level (soil)
TPH	1.2 mg/L	NA	280 mg/kg

Samples affected: OFF-S-TP-07-0708, OFF-S-TP-08-0304, OFF-S-TP-11-0506, OFF-S-TP-12-0405 and OFF-S-DUPL1

An action level of 5X the maximum concentration has been used to evaluate the sample data for blank contamination. Sample aliquot, percent solids and dilution factors were taken into consideration when evaluating for blank contamination. Positive results less than the action level for TPH in the affected sample have been qualified as nondetected "U". It should be noted that field quality control samples are not qualified for field blank contamination.

Matrix Spike / Matrix Spike Duplicate results:

The Matrix Spike / Matrix Spike Duplicate Percent Recoveries (%Rs) for TPH affecting the soil samples were > 125% quality control limit. The positive results reported for TPH in the affected samples were qualified as estimated, "J".

Laboratory Control Sample results:

The Laboratory Control Standard (LCS) %R affecting the aqueous matrix was > 120% quality control limit. The positive result reported for TPH in the affected sample was qualified as estimated, "J".

Field Duplicate results:

Field duplicate imprecision was noted for TPH in sample pair OFF-S-TP-14-0304 / OFF-S-DUPL2. The positive results reported for TPH affecting the soil samples were qualified as estimated, "J".

Notes

Sample OFF-A-TP-12-0405 was analyzed at a 10000X dilution. It was noted on the chain of custody that the sample contained heavy oil.

Executive Summary

Lab rat ry Performance: The LCS %R for TPH affecting the aqueous matrix was > 120% quality control limit.

Other Factors Affecting Data Quality: TPH was present in the rinsate blank. The MS/MSD %Rs for TPH affecting the soil matrix were > 125% quality control limit.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994, EPA Region I Functional Guidelines for Evaluating Inorganic Analyses", February 1989 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide " (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Terri R Solomon

Brown and Root Environmental
Terri L. Solomon
Chemist

Brown and Root Environmental
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation.

NETC NEWPORT
SDG FTA001
TABLE 1 - RECOMMENDATION SUMMARY

TPH	A^{1}	$J^{1,2,3}$

If the field is left blank, the qualifier is A - Accept all data.

A^{1} - Accept data but qualify data as nondetected, "U", as a result of laboratory blank contamination.

J^{1} - Accept data but qualify aqueous positive results as estimated, "J", as a result of LCS %R.

J^{2} - Accept data but qualify soil positive results as estimated, "J", as a MS/MSD %R.

J^{3} - Accept data but qualify soil positive results as estimated, "J" , as a result of field duplicate imprecision.

CTO288 - NETC NEWPORT
WATER DATA
KATAHDIN
SDG: FTA001

SAMPLE NUMBER.	OFF-A-FB1				OFF-A-TP-02-0203-RB				OFF-A-TP-04-0102-RB				OFF-A-TP-11-0506-RB				OFF-A-TP-12-0405			
SAMPLE DATE:	07/01/97				06/30/97				07/01/97				07/02/97				07/02/97			
LABORATORY ID	WN1718-6				WN1704-3				WN1718-5				WN1739-7				WN1739-8			
QC_TYPE:	NORMAL				NORMAL				NORMAL				NORMAL				NORMAL			
% SOLIDS	0 0 %				0 0 %				0 0 %				0 0 %				0 0 %			
FIELD DUPLICATE OF:																				
	RESULT	**QUAL**	**UNITS**		**RESULT**	**QUAL**	**UNITS**		**RESULT**	**QUAL**	**UNITS**		**RESULT**	**QUAL**	**UNITS**		**RESULT**	**QUAL**	**UNITS**	
T TAL PETROLEUM HYDROCARBONS																				
TOTAL PETROLEUM HYDROCARBONS	1 1	U	MG/L		1 1	U	MG/L		1 1	U	MG/L		1 2	J	MG/L		13000	U	MG/L	

SAMPLE NUMBER:	OFF-A-TP-13-0607-RB				
SAMPLE DATE.	07/03/97	/ /	/ /	/ /	/ /
LABORATORY ID	WN1748-6				
QC_TYPE:	NORMAL				
% SOLIDS	0 0 %	100 0 %	100 0 %	100 0 %	100 0 %
FIELD DUPLICATE OF					

	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS
TOTAL PETROLEUM HYDROCARBONS					
TOTAL PETROLEUM HYDROCARBONS	1 1 U MG/L				

CTO288 - NETC NEWPORT
SOIL DATA
KATAHDIN
SDG: FTA001

SAMPLE NUMBER:	OFF-S-TP-02-0203		OFF-S-TP-04-0102		OFF-S-TP-05-0708		OFF-S-TP-06-0607		OFF-S-TP-07-0708	
SAMPLE DATE:	06/30/97		07/01/97		07/01/97		07/01/97		07/02/97	
LABORATORY ID	WN1704-1		WN1718-2		WN1718-3		WN1718-4		WN1739-2	
QC_TYPE.	NORMAL		NORMAL		NORMAL		NORMAL		NORMAL	
% SOLIDS	96 0 %		93 0 %		89 0 %		86 0 %		86 0 %	
FIELD DUPLICATE OF:										
	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS
TOTAL PETROLEUM HYDROCARBONS										
TOTAL PETROLEUM HYDROCARBONS	140	J MG/KG	340	J MG/KG	40	U MG/KG	130	J MG/KG	59	U MG/KG

CTO288 - NETC NEWPORT
SOIL DATA
KATAHDIN
SDG: FTA001

SAMPLE NUMBER:	OFF-S-TP-08-0304	OFF-S-TP-11-0506	OFF-S-DUPL1	OFF-S-TP-12-0405	OFF-S-TP-13-0607
SAMPLE DATE:	07/02/97	07/02/97	07/02/97	07/02/97	07/03/97
LABORATORY ID	WN1739-3	WN1739-4	WN1739-6	WN1739-5	WN1748-2
QC_TYPE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS.	82 0 %	80 0 %	78 0 %	88 0 %	81 0 %
FIELD DUPLICATE OF:			OFF-S-TP-11-0506		

	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
TOTAL PETROLEUM HYDROCARBONS															
TOTAL PETROLEUM HYDROCARBONS	31	U	MG/KG	5800	J	MG/KG	7500	J	MG/KG	4100	J	MG/KG	7400	J	MG/KG

CTO288 - NETC NEWPORT
SOIL DATA
KATAHDIN
SDG: FTA001

SAMPLE NUMBER:	OFF-S-TP-14-0304		OFF-S-DUPL2		OFF-S-TP-15-0506				
SAMPLE DATE:	07/03/97		07/03/97		07/03/97		/ /		/ /
LABORATORY ID	WN1748-3		WN1748-4		WN1748-5				
QC_TYPE:	NORMAL		NORMAL		NORMAL				
% SOLIDS.	76 0 %		80 0 %		72 0 %		100 0 %		100 0 %
FIELD DUPLICATE OF:			OFF-S-TP-14-0304						
	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT QUAL UNITS
TOTAL PETROLEUM HYDROCARBONS									
TOTAL PETROLEUM HYDROCARBONS	2700	J MG/KG	4800	J MG/KG	21000	J MG/KG			

FTA001

TAL METALS

7578-59

Brown & Root Environmental

INTERNAL CORRESPONDENCE

C-49-08-7-221

TO: **D. CONAN** **DATE:** **SEPTEMBER 16, 1997**

FROM: **TERRI L. SOLOMON** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION - TAL METALS**
CTO 288 - NETC NEWPORT, NEWPORT, RHODE ISLAND
SDG - FTA001

SAMPLES: 13/Soils/

OFF-S-TP-02-0203	OFF-S-TP-04-0102	OFF-S-TP-05-0708
OFF-S-TP-06-0607	OFF-S-TP-07-0708	OFF-S-TP-08-0304
OFF-S-TP-11-0506	OFF-S-TP-12-0405	OFF-S-DUPL1
OFF-S-TP-13-0607	OFF-S-TP-14-0304	OFF-S-DUPL2
OFF-S-TP-15-0506		

5/Aqueous/

OFF-A-TP-02-0203-RB1	OFF-A-TP-04-0102-RB2	OFF-A-FB1
OFF-A-TP-11-0506-RB3	OFF-A-TP-13-0607-RB4	

Overview

The sample set for CTO 288, NETC Newport, SDG FTA001, consists of thirteen (13) soil environmental samples, four rinsate blanks (OFF-A-TP-02-0203-RB1, OFF-A-TP-04-0102-RB2, OFF-A-TP-11-0506-RB3 and OFF-A-TP-13-0607-RB4) and one (1) field blank (OFF-A-FB1). Two (2) field duplicate pairs (OFF-S-TP-11-0506 / OFF-S-DUPL1 and OFF-S-TP-14-0304 / OFF-S-DUPL2) were included within this SDG.

All samples were analyzed for Target Analyte List (TAL) metals. The samples were collected by Brown and Root Environmental on June 30, July 1, 2 and 3, 1997 and analyzed by Katahdin Analytical Services under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. All analyses were conducted using Contract Laboratory (CLP) Statement of Work (SOW) ILM04.0 analytical and reporting protocols. All analyses, with the exception of mercury, were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using cold vapor AA.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
  • Calibration Verifications
  • Laboratory Blank Analyses
* • Field Blank Analyses
  • Interference Check Sample (ICS) Results
  • Matrix Spike Results
  • Laboratory Duplicate Results
  • Field Duplicate Results
* • Laboratory Control Sample Results
* • ICP Serial Dilution Results
* • Analyte Quantitation
* • Detection Limits

* - All quality control criteria were met for this parameter.

The attached Table 1 summarizes the validation recommendations which were based on the following information:

Calibration Verifications

The Contract Required Detection Limit (CRDL) Percent Recoveries (%Rs) for calcium, magnesium, mercury and sodium were > 120% quality control limit. The positive results < 3X CRDL reported for the aforementioned analytes were qualified as estimated, "J".

The CRDL %R for thallium was < 80% quality control limit. The nondetected results reported for the aforementioned analyte were qualified as estimated, "UJ".

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method / preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level (aqueous)	Action Level (soil)
aluminum	118.36 ug/L	591.8 ug/L	85.77 mg/kg
antimony	3.24 ug/L	NA	2.35 mg/kg
arsenic	1.97 ug/L	NA	1.43 mg/kg
barium	1.51 ug/L	7.55 ug/L	1.09 mg/kg
beryllium	5.62 ug/L	NA	4.07 mg/kg
cadmium	3.35 ug/L	NA	2.43 mg/kg
calcium	124.54 ug/L	622.7 ug/L	90.2 mg/kg
chromium	5.68 ug/L	NA	4.11 mg/kg
cobalt	4.21 ug/L	NA	3.05 mg/kg
copper[1]	0.500 mg/kg	NA	2.5 mg/kg
iron	44.64 ug/L	223.2 ug/L	32.3 mg/kg
lead[1]	0.332 mg/kg	NA	1.66 mg/kg
magnesium	117.88 ug/L	589.4 ug/L	85.4 mg/kg
manganese	1.53 ug/L	7.65 ug/L	1.11 mg/kg
mercury	0.02 ug/L	0.10 ug/L	0.05 mg/kg
nickel	11.26 ug/L	56.3 ug/L	8.16 mg/kg
potassium	467.79 ug/L	2338.95 ug/L	339 mg/kg
silver	3.19 ug/L	NA	2.31 mg/kg
sodium	178.68 ug/L	893.4 ug/L	129.5 mg/kg
thallium	5.17 ug/L	NA	3.75 mg/kg
vanadium	4.46 ug/L	NA	3.23 mg/kg
zinc	6.29 ug/L	31.45 ug/L	4.56 mg/kg

Samples affected: All

[1] Maximum concentration present in a soil preparation blank.

An action level of 5X the maximum concentration has been used to evaluate the sample data for blank contamination. Sample aliquot, percent solids and dilution factors were taken into consideration when evaluating for blank contamination. Positive results less than the action level for aluminum, antimony, barium, beryllium, cadmium, calcium, iron, magnesium, manganese, mercury, nickel, potassium, silver, sodium, thallium and zinc have been qualified as nondetected "U". No actions were required for the remaining analytes as all results were either greater than the action levels or were nondetects.

Interference Check Sample Results

The interfering analyte iron was present in samples OFF-S-DUPL1, OFF-S-TP-05-0708, OFF-S-TP-07-0708 and OFF-S-TP-11-0506 at a concentration which was comparable to the level of iron in the Interference Check Sample (ICS) solution. Several analytes namely arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, manganese, nickel, selenium and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for beryllium, cadmium and selenium in the affected samples. The positive results reported for selenium were qualified as estimated, "J". The positive results reported for beryllium and cadmium received no validation flags as the results were qualified as blank contamination.

The interfering analyte iron was present in samples OFF-S-DUPL2 and OFF-S-TP-08-0304 at a concentration which was comparable to the level of iron in the Interference Check Sample (ICS) solution. Several analytes namely arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, manganese, nickel, selenium and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for beryllium and selenium in the affected samples. The positive results reported for selenium were qualified as estimated, "J". The positive results reported for beryllium received no validation flags as the results were qualified as blank contamination.

The interfering analyte iron was present in samples OFF-S-TP-12-0405 and OFF-S-TP-14-0304 at a concentration which was comparable to the level of iron in the Interference Check Sample (ICS) solution. Several analytes namely arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, manganese, nickel, selenium and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for beryllium and selenium in the affected samples. The nondetected results reported for selenium were qualified as estimated, "UJ". The positive results reported for beryllium received no validation flags as the results were qualified as blank contamination.

The interfering analyte iron was present in sample OFF-S-TP-06-0607 at a concentration which was comparable to the level of iron in the Interference Check Sample (ICS) solution. Several analytes namely arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, manganese, nickel, selenium and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for beryllium, cadmium and selenium in the affected sample. The nondetected result reported for selenium was qualified as estimated, "UJ". The positive results reported for beryllium and cadmium received no validation flags as the results were qualified as blank contamination.

The interfering analyte iron was present in sample OFF-S-TP-13-0607 at a concentration which was comparable to the level of iron in the Interference Check Sample (ICS) solution. Several analytes namely arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, manganese, nickel, selenium and zinc were present in the ICS s luti n at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for arsenic, beryllium, cadmium and selenium in the affected sample. The positive results reported for arsenic, cadmium and selenium were qualified as estimated, "J". The positive result reported for beryllium received no validation flag as the result was qualified as blank contamination.

Matrix Spike Results

The Matrix Spike Percent Recovery (%R) for antimony affecting the soil samples was < 30% quality control limit. The positive results reported for the aforementioned analyte were qualified as estimated, "J". The nondetected results reported for the aforementioned analyte were qualified as rejected, "UR".

The MS %Rs for arsenic, barium, chromium and selenium affecting the soil samples were < 75% quality control limit. The positive results and nondetects reported for the aforementioned analytes were qualified as estimated, "J" and "UJ", respectively.

The MS %R for manganese affecting the soil samples was > 125% quality control limit. The positive results reported for the aforementioned analyte were qualified as estimated, "J".

Laboratory Duplicate Results

Laboratory duplicate imprecision was noted for antimony, barium, calcium, lead and zinc. The positive results reported for the aforementioned analytes were qualified as estimated, "J".

Field Duplicate Results

Field duplicate imprecision was noted for soil sample pair OFF-S-TP-11-0506 and OFF-S-DUPL1 for lead. The positive results reported for the aforementioned analyte in the affected samples were qualified as estimated, "J".

Notes

The Continuing Calibration Verifications (CCVs) for barium, cobalt and nickel analyzed on July 16, 1997 (CCVs #4 and #5) were below the 90% quality control limit. However, no validation actions were warranted as no environmental samples were affected by this noncompliance.

The CCVs for all analytes analyzed on July 25, 1997 (CCV #13) had 0% recoveries. It was noted in the case narrative that the autosampler cup was empty during the final CCV analysis. No samples within this SDG were affected. Therefore, no validation actions were required.

The CRDL %Rs for aluminum, cadmium, iron, lead and zinc were outside the 80-120% quality control limits. However, no validation actions were warranted as the sample results were either > 3X CRDL, were qualified as blank contamination or were nondetects.

The interfering analyte iron was present in sample OFF-S-TP-02-0203 at a concentration which was comparable to the level of iron in the Interference Check Sample (ICS) solution. Several analytes namely barium, beryllium, cadmium, chromium, copper, lead, manganese, sodium and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for beryllium, cadmium and sodium in the affected sample. The positive results reported for beryllium, cadmium and sodium received no validation flags as the results were qualified as blank contamination.

The ICP Serial Dilution Percent Differences for aluminum, calcium, lead, magnesium and manganese were greater than the 10% quality control limit. However, no validation actions are required for %Ds < 15%.

Executive Summary

Laborat ry Performance: The CRDL %Rs for several analytes were outside the 80-120% quality control limits. Several analytes were present in the laboratory method / preparation blanks.

Other Factors Affecting Data Quality: The interfering analyte lead was present in several analytes. The MS %Rs for antimony, arsenic, barium, chromium, manganese and selenium were outside the 75-125% quality control limits. Laboratory duplicate imprecision was noted for antimony, barium, calcium, lead and zinc. Field duplicate imprecision was noted for lead.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994, EPA Region I Functional Guidelines for Evaluating Inorganic Analyses", February 1989 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide " (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Brown and Root Environmental
Terri L. Solomon
Chemist

Brown and Root Environmental
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Region I Worksheets.
4. Appendix D - Support Documentation.

NETC NEWPORT
SDG FTA001
TABLE 1 - RECOMMENDATION SUMMARY

aluminum	A[1]			magnesium	A[1]	J[1]
antimony	A[1]	J[5,6]	R[1]	manganese	A[1]	J[4]
arsenic		J[2,3]		mercury	A[1]	J[1]
barium	A[1]	J[3,6]		nickel	A[1]	
beryllium	A[1]			potassium	A[1]	
cadmium	A[1]	J[2]		selenium		J[2,3]
calcium	A[1]	J[1,6]		silver	A[1]	
chromium		J[3]		sodium	A[1]	J[1]
cobalt				thallium	A[1]	J[1]
copper				vanadium		
iron	A[1]			zinc	A[1]	J[6]
lead		J[6,7]				

If the field is left blank, the qualifier is A - Accept all data.

A[1] - Accept data but qualify data as nondetected, "U", as a result of laboratory blank contamination.

J[1] - Accept data but qualify positive results and nondetects as estimated, "J" and "UJ", respectively, as a result of CRDL %R.

J[2] - Accept data but qualify positive results and nondetects as estimated, "J" and "UJ", respectively, as a result of ICP Interference.

J[3] - Accept data but qualify positive results and nondetects affecting the soil samples as estimated, "J" and "UJ", respectively, as a result of low MS %R.

J[4] - Accept data but qualify positive results affecting the soil samples as estimated, "J", as a result of high MS %R.

J[5] - Accept data but qualify positive results affecting the soil samples as estimated, "J", as a result of extremely low MS %R.

J[6] - Accept data but qualify positive results affecting the soil samples as estimated, "J", as a result of laboratory duplicate imprecision.

J[7] - Accept data but qualify positive results affecting the soil samples as estimated, "J", as a result of field duplicate imprecision.

R[1] - Accept data but qualify nondetected results affecting soil samples as rejected, "UR", as a result of extremely low MS %R.

CTO288 - NETC NEWPORT
WATER DATA
KATAHDIN
SDG: FTA001

SAMPLE NUMBER:	OFF-A-FB1			OFF-A-TP-02-0203-RB			OFF-A-TP-04-0102-RB			OFF-A-TP-11-0506-RB			OFF-A-TP-13-0607-RB4		
SAMPLE DATE:	07/01/97			06/30/97			07/01/97			07/02/97			07/03/97		
LABORATORY ID	WN1718-6			WN1704-3			WN1718-5			WN1739-7			WN1748-6		
QC_TYPE	FIELD BLANK			RINSE BLANK			RINSE BLANK			RINSE BLANK			RINSE BLANK		
% SOLIDS:	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF:															
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
INORGANICS															
ALUMINUM	70 8	U	UG/L	75 0	U	UG/L	81 6	U	UG/L	93 7	U	UG/L	89 7	U	UG/L
ANTIMONY	2 1	U	UG/L	2 1	U	UG/L	2 1	U	UG/L	2 1	U	UG/L	2 1	U	UG/L
ARSENIC	1 8	U	UG/L	1 8	U	UG/L	1 8	U	UG/L	1 8	U	UG/L	1 8	U	UG/L
BARIUM	0 15	U	UG/L	0 36	U	UG/L	0 29	U	UG/L	0 25	U	UG/L	0 46	U	UG/L
BERYLLIUM	0 14	U	UG/L	0 14	U	UG/L	0 14	U	UG/L	0 14	U	UG/L	0 14	U	UG/L
CADMIUM	0 19	U	UG/L	0 19	U	UG/L	0 19	U	UG/L	0 19	U	UG/L	0 19	U	UG/L
CALCIUM	7 2	U	UG/L	7 2	U	UG/L	40 2	U	UG/L	7 2	U	UG/L	7 2	U	UG/L
CHROMIUM	0 53	U	UG/L	0 53	U	UG/L	0 53	U	UG/L	0 53	U	UG/L	0 53	U	UG/L
COBALT	0 51	U	UG/L	0 51	U	UG/L	0 51	U	UG/L	0 51	U	UG/L	0 51	U	UG/L
COPPER	0 74	U	UG/L	0 74	U	UG/L	0 74	U	UG/L	0 74	U	UG/L	0 74	U	UG/L
IRON	12 5	U	UG/L	9 9	U	UG/L	12 9	U	UG/L	20 2	U	UG/L	12 1	U	UG/L
LEAD	1 4	U	UG/L	1 4	U	UG/L	1 4	U	UG/L	1 4	U	UG/L	1 4	U	UG/L
MAGNESIUM	4 8	U	UG/L	4 8	U	UG/L	7 0	U	UG/L	14 6	U	UG/L	12 9	U	UG/L
MANGANESE	0 27	U	UG/L	0 25	U	UG/L	0 46	U	UG/L	0 29	U	UG/L	0 32	U	UG/L
MERCURY	0 01	U	UG/L	0 01	U	UG/L	0 02	U	UG/L	0 02	U	UG/L	0 01	U	UG/L
NICKEL	0 72	U	UG/L	0 72	U	UG/L	0 72	U	UG/L	0 72	U	UG/L	0 89	U	UG/L
POTASSIUM	346	U	UG/L	346	U	UG/L	346	U	UG/L	346	U	UG/L	366	U	UG/L
SELENIUM	2 9	U	UG/L	2 9	U	UG/L	2 9	U	UG/L	2 9	U	UG/L	2 9	U	UG/L
SILVER	0 82	U	UG/L	0 82	U	UG/L	0 82	U	UG/L	0 82	U	UG/L	0 82	U	UG/L
SODIUM	51 3	U	UG/L	61 5	U	UG/L	84 7	U	UG/L	61 1	U	UG/L	73 4	U	UG/L
THALLIUM	3 9	U	UG/L	3 9	U	UG/L	3 9	U	UG/L	3 9	U	UG/L	3 9	U	UG/L
VANADIUM	0 57	U	UG/L	0 57	U	UG/L	0 57	U	UG/L	0 57	U	UG/L	0 57	U	UG/L
ZINC	2 6	U	UG/L	2 2	U	UG/L	4 6	U	UG/L	2 8	U	UG/L	3 0	U	UG/L

NETC - NEWPORT CTO 288
SOIL DATA
KATAHDIN
SDG: FTA001

SAMPLE NUMBER:	OFF-S-TP-02-0203		OFF-S-TP-04-0102		OFF-S-TP-05-0708		OFF-S-TP-06-0607		OFF-S-TP-07-0708	
SAMPLE DATE	06/30/97		07/01/97		07/01/97		07/01/97		07/02/97	
LABORATORY ID	WN1704-1		WN1718-2		WN1718-3		WN1718-4		WN1739-2	
QC_TYPE	NORMAL		NORMAL		NORMAL		NORMAL		NORMAL	
% SOLIDS:	96 0 %		93 0 %		89 0 %		86 0 %		86 0 %	
FIELD DUPLICATE OF:										
	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS
INORGANICS										
ALUMINUM	6600	MG/KG	7190	MG/KG	11100	MG/KG	11900	MG/KG	9000	MG/KG
ANTIMONY	0 34	UR MG/KG	160	J MG/KG	0 49	U MG/KG	0 36	U MG/KG	0 93	U MG/KG
ARSENIC	4 1	J MG/KG	9.4	J MG/KG	14 3	J MG/KG	5.7	J MG/KG	6 2	J MG/KG
BARIUM	14 1	J MG/KG	280	J MG/KG	41.4	J MG/KG	26 0	J MG/KG	22 7	J MG/KG
BERYLLIUM	0 27	U MG/KG	0 28	U MG/KG	0 27	U MG/KG	0 32	U MG/KG	0 29	U MG/KG
CADMIUM	1.3	U MG/KG	0 85	U MG/KG	0 14	U MG/KG	0.09	U MG/KG	0 09	U MG/KG
CALCIUM	597	J MG/KG	5530	J MG/KG	1480	J MG/KG	1570	J MG/KG	1320	J MG/KG
CHROMIUM	8 7	J MG/KG	17.0	J MG/KG	15 6	J MG/KG	12 3	J MG/KG	10.1	J MG/KG
COBALT	6 8	MG/KG	7.8	MG/KG	14 2	MG/KG	10 0	MG/KG	7.4	MG/KG
COPPER	16 5	MG/KG	17 6	MG/KG	88 2	MG/KG	22.7	MG/KG	19 7	MG/KG
IRON	25300	MG/KG	16100	MG/KG	56300	MG/KG	25000	MG/KG	19100	MG/KG
LEAD	46 6	J MG/KG	152	J MG/KG	540	J MG/KG	55.5	J MG/KG	40 7	J MG/KG
MAGNESIUM	2360	MG/KG	3060	MG/KG	3970	MG/KG	3000	MG/KG	2180	MG/KG
MANGANESE	292	J MG/KG	286	J MG/KG	698	J MG/KG	410	J MG/KG	417	J MG/KG
MERCURY	0 02	U MG/KG	0 08	J MG/KG	0.21	J MG/KG	0 06	J MG/KG	0 10	J MG/KG
NICKEL	14 6	MG/KG	13 5	MG/KG	24 5	MG/KG	20.5	MG/KG	19 2	MG/KG
POTASSIUM	418	MG/KG	334	U MG/KG	417	MG/KG	363	U MG/KG	316	U MG/KG
SELENIUM	0 81	J MG/KG	0 67	J MG/KG	0 53	J MG/KG	0 45	UJ MG/KG	0 50	J MG/KG
SILVER	0.13	U MG/KG	0.14	U MG/KG	0.13	U MG/KG	0 13	U MG/KG	0 13	U MG/KG
SODIUM	99.1	U MG/KG	49 5	U MG/KG	1070	J MG/KG	71.9	U MG/KG	65 0	U MG/KG
THALLIUM	0 62	UJ MG/KG	0.65	UJ MG/KG	0.63	U MG/KG	0.61	UJ MG/KG	0 61	UJ MG/KG
VANADIUM	8.2	MG/KG	11.2	MG/KG	17.8	MG/KG	17.5	MG/KG	13 2	MG/KG
ZINC	986	J MG/KG	338	J MG/KG	533	J MG/KG	101	J MG/KG	80.0	J MG/KG

NETC - NEWPORT CTO 288
SOIL DATA
KATAHDIN
SDG: FTA001

SAMPLE NUMBER:	OFF-S-TP-08-0304		OFF-S-TP-11-0506		OFF-S-DUPL1		OFF-S-TP-12-0405		OFF-S-TP-13-0607	
SAMPLE DATE:	07/02/97		07/02/97		07/02/97		07/02/97		07/03/97	
LABORATORY ID	WN1739-3		WN1739-4		WN1739-6		WN1739-5		WN1748-2	
QC_TYPE	NORMAL		NORMAL		NORMAL		NORMAL		NORMAL	
% SOLIDS	82 0 %		80 0 %		78 0 %		88 0 %		81 0 %	
FIELD DUPLICATE OF:					OFF-S-TP-11-0506					
	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS
INORGANICS										
ALUMINUM	11800	MG/KG	9210	MG/KG	8470	MG/KG	8340	MG/KG	8620	MG/KG
ANTIMONY	0 35	UR MG/KG	0 40	UR MG/KG	0 51	U MG/KG	0 44	U MG/KG	39 2	J MG/KG
ARSENIC	13 8	J MG/KG	8 2	J MG/KG	8 3	J MG/KG	4 8	J MG/KG	18 3	J MG/KG
BARIUM	33 7	J MG/KG	50 1	J MG/KG	90.0	J MG/KG	23.9	J MG/KG	160	J MG/KG
BERYLLIUM	0 35	U MG/KG	0 44	U MG/KG	0 46	U MG/KG	0 22	U MG/KG	0 20	U MG/KG
CADMIUM	0 03	U MG/KG	0 10	U MG/KG	0.13	U MG/KG	0 03	U MG/KG	4 4	J MG/KG
CALCIUM	1090	J MG/KG	1310	J MG/KG	1650	J MG/KG	1740	J MG/KG	24400	J MG/KG
CHROMIUM	15 4	J MG/KG	13.1	J MG/KG	12 0	J MG/KG	8 0	J MG/KG	21 7	J MG/KG
COBALT	10 8	MG/KG	9.9	MG/KG	8 9	MG/KG	6 0	MG/KG	12 9	MG/KG
COPPER	41.0	MG/KG	39 1	MG/KG	49 7	MG/KG	51.0	MG/KG	604	MG/KG
IRON	27500	MG/KG	26500	MG/KG	22100	MG/KG	18500	MG/KG	110000	MG/KG
LEAD	57 8	J MG/KG	301	J MG/KG	563	J MG/KG	283	J MG/KG	7820	J MG/KG
MAGNESIUM	2590	MG/KG	2400	MG/KG	2180	MG/KG	1800	J MG/KG	3870	MG/KG
MANGANESE	478	J MG/KG	306	J MG/KG	291	J MG/KG	516	J MG/KG	898	J MG/KG
MERCURY	0 11	J MG/KG	0.24	MG/KG	0.14	J MG/KG	0 09	J MG/KG	0.35	MG/KG
NICKEL	20 1	MG/KG	19 6	MG/KG	18 7	MG/KG	18 4	MG/KG	29 1	MG/KG
POTASSIUM	380	U MG/KG	450	MG/KG	421	U MG/KG	355	U MG/KG	382	U MG/KG
SELENIUM	0 66	J MG/KG	0 60	J MG/KG	1 1	J MG/KG	0 50	UJ MG/KG	0 71	J MG/KG
SILVER	0 13	U MG/KG	0 15	U MG/KG	0 16	U MG/KG	0 14	U MG/KG	0 97	U MG/KG
SODIUM	51 4	U MG/KG	193	J MG/KG	199	J MG/KG	85 6	U MG/KG	926	J MG/KG
THALLIUM	0 65	UJ MG/KG	0 73	UJ MG/KG	0 69	UJ MG/KG	0 68	UJ MG/KG	0.75	UJ MG/KG
VANADIUM	20 7	MG/KG	19.6	MG/KG	19 8	MG/KG	13 8	MG/KG	18 2	MG/KG
ZINC	60 6	J MG/KG	165	J MG/KG	201	J MG/KG	63 7	J MG/KG	2870	J MG/KG

NETC - NEWPORT CTO 288
SOIL DATA
KATAHDIN
SDG: FTA001

SAMPLE NUMBER:	OFF-S-TP-14-0304		OFF-S-DUPL2		OFF-S-TP-15-0506		/ /		/ /	
SAMPLE DATE:	07/03/97		07/03/97		07/03/97					
LABORATORY ID	WN1748-3		WN1748-4		WN1748-5					
QC_TYPE:	NORMAL		NORMAL		NORMAL					
% SOLIDS:	76 0 %		80 0 %		72 0 %		100 0 %		100 0 %	
FIELD DUPLICATE OF:			OFF-S-TP-14-0304							
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT QUAL UNITS
IN RGANICS										
ALUMINUM	13200		MG/KG	10300		MG/KG	5220		MG/KG	
ANTIMONY	0.38	UR	MG/KG	0.41	UR	MG/KG	0 76	U	MG/KG	
ARSENIC	10 5	J	MG/KG	10 4	J	MG/KG	9 9	J	MG/KG	
BARIUM	15 0	J	MG/KG	15.6	J	MG/KG	144	J	MG/KG	
BERYLLIUM	0 28	U	MG/KG	0 24	U	MG/KG	0 38	U	MG/KG	
CADMIUM	0 03	U	MG/KG	0 04	U	MG/KG	1 7	U	MG/KG	
CALCIUM	729	J	MG/KG	917	J	MG/KG	5190	J	MG/KG	
CHROMIUM	16.6	J	MG/KG	12.3	J	MG/KG	12.3	J	MG/KG	
COBALT	7 9		MG/KG	9 8		MG/KG	5 6		MG/KG	
COPPER	22 3		MG/KG	22.8		MG/KG	146		MG/KG	
IRON	31100		MG/KG	28900		MG/KG	19000		MG/KG	
LEAD	38 1	J	MG/KG	42 0	J	MG/KG	766	J	MG/KG	
MAGNESIUM	4720		MG/KG	3410		MG/KG	2810		MG/KG	
MANGANESE	231	J	MG/KG	229	J	MG/KG	157	J	MG/KG	
MERCURY	0 05	U	MG/KG	0 04	U	MG/KG	0 18	J	MG/KG	
NICKEL	21 9		MG/KG	19.1		MG/KG	14 3		MG/KG	
POTASSIUM	492		MG/KG	448		MG/KG	481	U	MG/KG	
SELENIUM	0 52	UJ	MG/KG	0 65	J	MG/KG	0 87	J	MG/KG	
SILVER	0 15	U	MG/KG	0.16	U	MG/KG	0 89	U	MG/KG	
SODIUM	1520	J	MG/KG	1540	J	MG/KG	1720	J	MG/KG	
THALLIUM	0 71	UJ	MG/KG	0.76	UJ	MG/KG	0.86	UJ	MG/KG	
VANADIUM	17 4		MG/KG	15 1		MG/KG	19.2		MG/KG	
ZINC	70 1	J	MG/KG	69 6	J	MG/KG	577	J	MG/KG	

FTA002

TCL VOAs, SVOAs, PEST/PCBs

7572-5.9

Brown & Root Environmental INTERNAL CORRESPONDENCE

C-49-09-7-080

TO: D. CONAN **DATE:** SEPTEMBER 18, 1997

FROM: SEAN NIXON **COPIES:** DV FILE

SUBJECT: ORGANIC DATA VALIDATION - TCL VOAS, SVOAS, PEST/PCBS
CTO 288 NETC NEWPORT, RHODE ISLAND
SDG - FTA002

SAMPLES: 2/Aqueous

OFF-A-TB5	OFF-A-TP-17-0809-RB5

11/Solid

OFF-S-DUPL3	OFF-S-DUPL6	OFF-S-MW101-0608
OFF-S-MW102-0608	OFF-S-SS1-0005	OFF-S-SS2-0005
OFF-S-SS3-0000	OFF-S-SS4-0005	OFF-S-SS5-0005
OFF-S-TP-16-1011	OFF-S-TP-17-0809	

The sample set for CTO 288 NETC Newport, Rhode Island SDG FTA002 consists of two (2) aqu ous environmental samples, including one (1) trip blank -TB-, and one (1) rinse blank designated -RB. The field duplicate pairs, samples OFF-S-TP-17-0809/ OFF-A-DUPL3 and OFF-S-SS1-0005/ OFF-A-DUPL6, were included in this SDG. All samples were to be analyzed for Target Compound List (TCL) volatile organics except OFF-S-DUPL6, OFF-S-SS1-0005, OFF-S-SS2-0005, OFF-S-SS3-0000, OFF-S-SS4-0005, and OFF-S-SS5-0005. All samples, except the trip blanks, were to be analyzed for TCL semivolatile organics and Pesticide/ PCBs. Samples OFF-S-MW101-0608 and OFF-S-SS1-0005 were specified for Matrix Spike/ Matrix Spike Duplicate (MS/ MSD) analysis by the field crew.

Th samples were collected by Brown and Root Environmental on July 7, 9, and 11, 1997 and analyzed by Katahdin Analytical Services under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. All analyses were conducted using the Contract Laboratory Program (CLP) Statement of Work (SOW) OLM03.1

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times and Sample Handling
  • Calibrations
  • Calibration Verifications
  • Laboratory Blank Analyses
  • Surrogate Spike Recoveries
  • Matrix Spike Results
* • Laboratory Control Samples
  • Internal Standard Performance

* • Compound Identification
* • Compound Quantitation
• Field Duplicate Results
* • Detection Limits
* • Tentatively Identified Compounds (TICs)

* - All quality control criteria were met for this parameter.

The attached Table 1 summarizes the validation recommendations which were based on the following information:

CALIBRATIONS

The following table summarizes calibration noncompliances and corresponding validation actions. The key associated with this table is presented after the table.

Volatiles

Compound	IC 07-08-97	IC 07-02-97
Acetone	XX	
2-Butanone	XX	
2-Hexanone	XX	
Bromoform		XX
Affected Samples	OFF-A-TB5, OFF-A-TP-17-0809-RB OFF-S-MW101-0608,	OFF-S-DUPL3, OFF-S-MW102-0608, OFF-S-TP-16-1011, OFF-S-TP-17-0809

Compound	CC 07-08-97	CC 07-11-97	CC 07-08-97
Acetone	XX	XX	
2-Butanone	XX	XX	
2-Hexanone	XX	XX	
Methylene chloride		XX	
Carbon disulfide		XX	
1,1-dichloroethene		XX	
1,2-dichloropropane			XX
Affected Samples	OFF-A-TB5 OFF-A-TP-17-0809-RB	OFF-S-MW101-0608	OFF-S-DUPL3, OFF-S-MW102-0608, OFF-S-TP-1011, OFF-S-TP-17-0805

Semivolatiles

Compound	CC 07-23-97	CC 08-01-97	CC 08-02-97
Pyrene	XX		
Di-n-octylphthalate	XX	XX	XX
2,4-Dinitrophenol			
4-nitrophenol			
Diethylphthalate			
4-nitroaniline			
4,6-Dinitro-2-methylphenol			
Fluoranthene			
2,2'-oxybis(1-chloropropane)		XX	

Affected Samples	OFF-A-TP-17-0809-RB	OFF-S-DUPL3	OFF-S-DUPL6
		OFF-S-MW101-0608	OFF-S-SS1-0005
		OFF-S-MW102-0608	OFF-S-SS3-0000
		OFF-S-SS2-0005	OFF-S-SS4-0005
		OFF-S-TP-17-0809	OFF-S-SS5-0005

Compound	CC 08-04-97
Hexachlorocyclopentadiene	XX
3,3'-dichlorobenzidine	XX
Di-n-octylphthalate	XX
Dibenzo(a,h)anthracene	XX

Affected Samples OFF-S-TP-16-1011

Pesticide/PCBs

Compound	IC 07-29-97
Alpha-BHC	X
Heptachlor	X

Affected samples All

Compound	CC 07-31-97
Endrin Ketone	X

Affected samples All

Calibration Actions

XX - Percent Relative Standard Deviation (%RSD) greater than 30% for volatiles and semivolatiles. Qualify positive and nondetected results as estimated, (J) and (UJ) respectively.

X - Percent Relative Standard Deviation (%RSD) greater than 20% or %D greater than 25% for pesticide/PCBs. Qualify nondetected results as estimated, (UJ).

A volatile initial calibration contained %RSDs greater than the 30% quality control limit for acetone (64.3%), 2-butanone (53.0%), and 2-hexanone (40.1%). The positive and nondetected results for the aforementioned compounds in the affected samples were qualified as estimated, (J) and (UJ) respectively.

A volatile initial calibration contained a %RSD greater than the 30% quality control limit for bromoform (30.11%). This noncompliance affects positive and nondetected results. The nondetected results for bromoform in the affected sample were qualified as estimated, (UJ).

An initial calibration curve for pesticide/PCBs contained %RSDs greater than 25% for alpha-BHC and Heptachlor. Nondetected results for alpha-BHC and Heptachlor in the affected samples were qualified as estimated, (UJ).

A volatile continuing calibration contained %Ds greater than the 25% quality control limit for acetone, 2-butanone, and 2-hexanone. This noncompliance affects positive and nondetected results. The nondetected results for the aforementioned compounds in the affected samples were qualified as estimated, (UJ).

A volatile continuing calibration contained %Ds greater than the 25% quality control limit for acetone, methylene chloride, carbon disulfide, 1,1-dichloroethene, 2-hexanone, and 2-butanone. This noncompliance affects positive and nondetected results. The nondetected results for the aforementioned compounds in the affected samples were qualified as estimated, (UJ) The positive results reported for acetone were qualified for blank contamination, (U).

A volatile continuing calibration contained a %D greater than the 25% quality control limit for 1,2-dichloropropane. This noncompliance affects positive and nondetected results. The nondetected results for the 1,2-dichloropropane in the affected samples were qualified as estimated, (UJ).

A semivolatile continuing calibration contained %Ds greater than the 25% quality control limit for pyrene and di-n-octylphthalate. This noncompliance affects positive and nondetected results. The nondetected results for the aforementioned compounds in the affected samples were qualified as estimated, (UJ).

A semivolatile continuing calibration contained %Ds greater than the 25% quality control limit for 2,2'-oxybis(1-chl ropropane) and di-n-octylphthalate. This noncompliance affects positive and nondetected results. Th nondetected results reported for the aforementioned compounds in the affected samples were qualified as estimated, (UJ).

A semivolatile continuing calibration contained a %D greater than the 25% quality control limit for di-n-octylphthalate. This noncompliance affects positive and nondetected results. The nondetected results reported for the aforementioned compound in the affected samples were qualified as estimated, (UJ).

A semivolatile continuing calibration contained %Ds greater than the 25% quality control limit for hexachlorocyclopentadiene, 3,3'-dichlorobenzidine, di-n-octylphthalate, and dibenzo(a,h)anthracene. This noncompliance affects positive and nondetected results. The nondetected results reported for the aforementioned compounds in the affected samples were qualified as estimated, (UJ).

The pesticide/PCB initial calibration contained %RSDs greater than the 20% quality control limit foe Alpha-BHC and Heptachlor. The nondetected results for the aforementioned compounds in all of the samples were qualified as estimated, (UJ).

A pesticide/PCB continuing calibration contained a %D greater than the 20% quality control limit for Endrin Ketone. The nondetected results for Endrin ketone in all of the samples were qualified as estimated, (UJ).

BLANKS

The following contaminants were detected in the laboratory method/ preparation blanks at the following maximum concentrations:

Volatiles

Compound	Maximum Concentration	Solid Action Level (ug/kg)
Acetone[2]	20 ug/L	200 ug/kg

Samples Affected: All

Semivolatiles

Compound	Maximum Concentration	Solid Action Level
Bis(2-ethylhexyl)phthalate[2]	16 ug/L	5330 ug/kg

1 - Maximum concentration detected in a method blank.

2 - Maximum concentration detected in a rinse blank

Blank Actions

Valu < Contract Required Quantitation Limit (CRQL); report CRQL followed by a U.
Value > CRQL and < Action level; report value followed by a U.
Value > CRQL and > action level; report value unqualified.

Sample aliquot, dilution factors, and percent solid were considered prior to the application of the action levels. Positive results reported for the compounds listed above were qualified according to the blank action table. It should be noted that field quality control blanks were not qualified for field quality control blank contamination.

SURROGATE RECOVERIES

Volatiles

Sample OFF-S-TP-17-0809 yielded surrogate Percent Recoveries (%Rs) below and above the quality control limits for toluene-d8 and bromofluorobenzene respectively. While this noncompliance affects positive and nondetected results, since only nondetected results were reported in the aforementioned sample, the nondetected results were qualified as estimated, (UJ).

Sample OFF-S-MW102-0608 yielded a %R above the quality control limit for bromofluorobenzene. This noncompliance affects positive results only. The positive result reported for ethylbenzene in the aforementioned sample was qualified as estimated, (J).

Semivolatiles

Sample OFF-S-MW101-0608 yielded a %R above the quality control limit for the base/neutral fractional surrogate nitrobenzene-d5, and a %R below the quality control limit for the base/neutral fractional surrogate 2-fluorobiphenyl. The positive results of the base/neutral fraction that did not require analysis at a dilution and the nondetected results of the base/neutral fraction were qualified as estimated, (J) and (UJ), respectively.

Pesticide/PCBs

Samples OFF-S-SS2-0005 and OFF-S-SS4-005 yielded low surrogate %Rs for tetrachloro-m-xylene on both columns. This noncompliance affects positive and nondetected results. All of the nondetected results in the aforementioned samples were qualified as estimated, (UJ).

Sample OFF-S-TP-16-1011 yielded low surrogate %Rs for tetrachloro-m-xylene, and high %Rs for decachlorobiphenyl. This noncompliance affects positive and nondetected results. All of the nondetected results in the aforementioned sample were qualified as estimated, (J).

Sample OFF-S-MW102-0608 reported both low and high surrogate %Rs for decachlorobiphenyl. This noncompliance affects positive and nondetected results. All of the nondetected results in the aforementioned sample were qualified as estimated, (UJ).

Sample OFF-S-SS1-0005 reported low surrogate %Rs for tetrachloro-m-xylene on both columns and a high %R for decachlorobiphenyl. The positive and nondetected results were qualified as estimated, (J) and (UJ), respectively.

Samples OFF-S-MW101-0608, OFF-S-SS3-0000, and OFF-S-DUPL6 all reported high %Rs for the surrogate decachlorobiphenyl on one column Because only one surrogate on one column was noncompliant, no validation action was taken.

INTERNAL STANDARDS

Semivolatiles

Th analysis of sample OFF-S-MW102-0608 yielded internal standard areas less then the 50% quality control limits for naphthalene-d8, chrysene-d12, and perylene-d12. Additionally, the internal standards acenaphthene-d10 and phenanthrene-d10 reported areas less than 20% of the continuing calibration. Therefore, the nondetected results associated with the internal standards acenaphthene-d10 and phenanthrene-d10 were rejected (UR), and the positive results were qualified as estimated, (J), in the aforementioned sample. The positive and nondetected results associated with naphthalene-d8, chrysene-d12, and perylene-d12 w re qualified as estimated, (J) and (UJ) respectively, in the aforementioned sample.

The analysis of sample OFF-S-MW101-0608 yielded an internal standard area less then the 50% quality control for phenanthrene-d10. The nondetected results associated with the noncompliant internal standard were qualified as estimated, (UJ).

The analysis of sample OFF-S-SS3-0000 yielded internal standard areas less than the 50% quality control limit for phenanthrene-d10 and chrysene-d12. Additionally, the internal standard perylene-d12 reported an internal standard area less than the 20% quality control limit. The positive and nondetected results associated with phenanthrene-d10 and chrysene-d12 were qualified as estimated, (J) and (UJ) respectively, in the aforementioned sample. The positive results associated with perylene-d12 were qualified as estimated, (J), while the nondetected results were rejected, (UR), in the aforementioned sample.

FIELD DUPLICATE RESULTS

The semivolatile analyses of the field duplicate pair OFF-S-SS1-0005/ OFF-S-DUPL6 exhibited imprecision for benzo(k)fluoranthene and pyrene. The positive results for the aforementioned compounds in the above listed samples were qualified as estimated, (J).

ADDITIONAL COMMENTS

Positive results less than the CRQL were qualified as estimated, (J).

Th pestcide/PCB Form Is did not contain the correct sample Ids. The data reviewer has corrected the appropriate forms.

Several samples in the semivolatile analyses reported one fractional surrogate outside of quality control limits. However, action is not taken on the data for only one noncompliant semivolatile surrogate.

Several samples in the pesticide/PCB analyses yielded high surrogate %Rs for both surrogates. Since this noncompliance only affects positive results and only nondetected results were reported in the affected samples, no validation action was taken.

The MS/MSD analysis of sample OFF-S-SS1-0005 for pesticide/PCBs yielded high a %R for Endrin. Since the affected Endrin result was a nondetected result which is not affected by high MS %R, no validation action was taken.

Executive Summary

Lab ratory Performance: Blank contamination was noted for acetone and bis(2-ethylhexyl)phthalate. Th volatile initial calibrations contained %RSDs greater than the 30% quality control limit for acetone, 2-butanone, 2-h xanone, and bromoform. Several volatile and semivolatile compounds produced continuing calibration %Ds greater than the 25% quality control limit. Noncompliances were noted in the pesticide/PCB initial calibration for Alpha-BHC and Heptachlor, and also in the continuing calibration for Endrin ketone..

Other Factors Affecting Data Quality: Several samples yielded low internal standard areas for various semivolatile internal standards. Several samples reported noncompliant surrogate %Rs in all of the fractions.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Organic Review", February 1994, "EPA Region I Volatile/ Semivolatile Data Validation Functional Guidelines", December 1996 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide " (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Sean T. Nixon
Chemist/Data Validator
Brown and Root Environmental

Joseph A. Samchuck
Data Validation Quality Assurance Officer
Brown and Root Environmental

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Regional Worksheets.
4. Appendix D - Support Documentation

NETC Newport
SDG FTA002
TABLE 1 - RECOMMENDATION SUMMARY

Sample	Volatile	Semivolatile	Pesticide/PCB
OFF-A-TB5	$A^{2,4}$		
OFF-A-TP-17-0908-RB8	$A^{1,2,4}$	A^{8}	$A^{16,17}$
OFF-S-DUPL3	$A^{1,3,6}$	$A^{9,20}$	$A^{16,17}$
OFF-S-DUPL6		$A^{10,19,20}$	$A^{16,17}$
OFF-S-MW101-0608		$A^{9,12,14,20}$	$A^{16,17}$
OFF-S-MW102-0608	$A^{1,2,5}$, J^{1}	$A^{9,13}$, R^{1}	$A^{16,17,18}$
OFF-S-SS1-0005		$A^{10,19,20}$	$A^{16,17,18}$
OFF-S-SS2-0005		$A^{9,20}$	$A^{16,17,18}$
OFF-S-SS3-0000		$A^{10,15,19,20}$, R^{2}	$A^{16,17}$
OFF-S-SS4-0005		A^{10}	$A^{16,17,18}$
OFF-S-SS5-0005		$A^{10,20}$	$A^{16,17}$
OFF-S-TP-16-1011	$A^{1,3,6}$	$A^{11,20}$	$A^{16,17,18}$
OFF-S-TP-17-0809	$A^{3,6,7}$	$A^{9,20}$	$A^{16,17}$

A^{1} - Accept data, but qualify positive results for acetone as nondetected, (U), as a result of blank contamination.

A^{2} - Accept data, but qualify positive and nondetected results for acetone, 2-butanone, and 2-hexanone as estimated, (J) and (UJ) respectively, as a result of initial calibration %RSDs greater than 30%.

A^{3} - Accept data, but qualify nondetected results for bromoform as estimated, (UJ), as a result of an initial calibration %RSD greater than 30%.

A^{4} - Accept data, but qualify positive and nondetected results for acetone, 2-butanone, and 2-hexanone as estimated, (J) and (UJ) respectively, as a result of continuing calibration %Ds greater than 25%

A^{5} - Accept data, but qualify positive and nondetected results for acetone, methylene chloride, carbon disulfide, 1,1-dichloroethene, 2-hexanone, and 2-butanone as estimated, (J) and (UJ) respectively, as a result of continuing calibration %Ds greater than 25%.

A^{6} - Accept data, but qualify positive and nondetected results for 1,2-dichloropropane as estimated, (J) and (UJ) respectively, as a result of a continuing calibration %D greater than 25%.

A^{7} - Accept data, but qualify all nondetected results as estimated, (UJ), as a result of low surrogate %R for bromofluorobenzene.

A^{8} - Accept data, but qualify nondetected results for pyrene and di-n-octylphthalate as estimated, (UJ) as a result of continuing calibration %Ds greater than 25%.

A^{9} - Accept data, but qualify nondetected results for 2,2'-oxybis(1-chloropropane) and di-n-octylphthalate as estimated, (UJ), on account of continuing calibration %Ds greater than 25%.

A^{10} - Accept data, but qualify nondetected results for di-n-octylphthalate as estimated, (UJ), as a result of a continuing calibration %D greater than 25%.

A^{11} - Accept data, but qualify nondetected results for hexachlorocyclopentadiene, 3,3'-dichlorobenzidine, di-n-octylphthalate, and dibenzo(a,h)anthracene as estimated, (UJ), as a result of continuing calibration %Ds greater than 25%.

A^{12} - Accept data, but qualify positive and nondetected results associated of the base/neutral fraction as estimated, (J) and (UJ), as a result of low surrogate %R.

A^{13} - Accept data, but qualify positive results associated with the internal standards naphthalene-d8, chrysene-d12, and perylene-d12, acenaphthene-d10 and phenanthrene-d10 as estimated, (J). Qualify nondetected results associated with naphthalene-d8, chrysene-d12, and perylene-d12 as estimated, (UJ) as a result of internal standard areas less than lower quality control limit.

A^{14} - Accept data, but qualify positive and nondetected results associated with the internal standard phenanthrene-d10 as estimated, (J) and (UJ) respectively, as a result of internal standard area less than 50% quality control limit.

A^{15} - Accept data, but qualify positive results associated with phenanthrene-d10, chrysene-d12, and perylene-d12 as estimated, (J), on account of internal standard areas less than 50% quality control limit. Qualify nondetected results associated with phenanthrene-d10 and chrysene-d12 as estimated, (UJ), as a result of internal standard areas less than 50% quality control limit.

A^{16} - Accept data, but qualify nondetected results for Alpha BHC and Heptachlor as estimated, (UJ), as a result of initial calibration %RSDs greater than 25%.

A^{17} - Accept data, but qualify nondetected results for Endrin ketone as estimated, (UJ), as a result of a continuing calibration %D greater than 25%.

A^{18} - Accept data, but qualify nondetected results as estimated,(UJ), as a result of low surrogate %Rs.

A^{19} - Accept data, but qualify nondetected results for bis(2-ethylhexyl)phthalate as nondetected, (U), as result of blank contamination.

A^{20} - Accept data, but qualify positive results less than the CRQL as estimated, (J).

R^{1} - Reject nondetected results (UR) associated with internal standards acenaphthene-d10 and phenanthrene-d10 as a result of internal standard areas less than 20% of continuing calibration internal standard areas.

R^{2} - Reject nondetected results (UR) associated with internal standard perylene-d12 as a result of internal standard areas less than 20% of continuing calibration internal standard areas

NETC NEWPORT CTO 288
WATER DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER:	OFF-A-TB5			OFF-A-TP-17-0809-RB5			/ /			/ /			/ /		
SAMPLE DATE:	07/07/97			07/07/97											
LABORATORY ID	WN1762-1			WN1762-6											
QC_TYPE	TRIP BLANK			NORMAL											
% SOLIDS	0 0 %			0 0 %			100 0 %			100 0 %			100 0 %		
FIELD DUPLICATE OF:															
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
VOLATILES															
1,1,1-TRICHLOROETHANE	10	U	UG/L	10	U	UG/L									
1,1,2,2-TETRACHLOROETHANE	10	U	UG/L	10	U	UG/L									
1,1,2-TRICHLOROETHANE	10	U	UG/L	10	U	UG/L									
1,1-DICHLOROETHANE	10	U	UG/L	10	U	UG/L									
1,1-DICHLOROETHENE	10	U	UG/L	10	U	UG/L									
1,2-DICHLOROETHANE	10	U	UG/L	10	U	UG/L									
1,2-DICHLOROPROPANE	10	U	UG/L	10	U	UG/L									
2-BUTANONE	10	UJ	UG/L	10	UJ	UG/L									
2-HEXANONE	10	UJ	UG/L	10	UJ	UG/L									
4-METHYL-2-PENTANONE	10	U	UG/L	10	U	UG/L									
ACETONE	10	UJ	UG/L	20		UG/L									
BENZENE	10	U	UG/L	10	U	UG/L									
BROMODICHLOROMETHANE	10	U	UG/L	10	U	UG/L									
BROMOFORM	10	U	UG/L	10	U	UG/L									
BROMOMETHANE	10	U	UG/L	10	U	UG/L									
CARBON DISULFIDE	10	U	UG/L	10	U	UG/L									
CARBON TETRACHLORIDE	10	U	UG/L	10	U	UG/L									
CHLOROBENZENE	10	U	UG/L	10	U	UG/L									
CHLOROETHANE	10	U	UG/L	10	U	UG/L									
CHLOROFORM	10	U	UG/L	10	U	UG/L									
CHLOROMETHANE	10	U	UG/L	10	U	UG/L									
CIS-1,3-DICHLOROPROPENE	10	U	UG/L	10	U	UG/L									
DIBROMOCHLOROMETHANE	10	U	UG/L	10	U	UG/L									
ETHYLBENZENE	10	U	UG/L	10	U	UG/L									
METHYLENE CHLORIDE	10	U	UG/L	10	U	UG/L									
STYRENE	10	U	UG/L	10	U	UG/L									
TETRACHLOROETHENE	10	U	UG/L	10	U	UG/L									
TOLUENE	10	U	UG/L	10	U	UG/L									
TOTAL 1,2-DICHLOROETHENE	10	U	UG/L	10	U	UG/L									
TRANS-1,3-DICHLOROPROPENE	10	U	UG/L	10	U	UG/L									
TRICHLOROETHENE	10	U	UG/L	10	U	UG/L									
VINYL CHLORIDE	10	U	UG/L	10	U	UG/L									
XYLENES, TOTAL	10	U	UG/L	10	U	UG/L									

CTO288 - NETC NEWPORT
SOIL DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER:	OFF-S-MW101-0608	OFF-S-MW102-0608	OFF-S-TP-16-1011	OFF-S-TP-17-0809	OFF-S-DUPL3
SAMPLE DATE:	07/09/97	07/07/97	07/07/97	07/07/97	07/07/97
LABORATORY ID	WN1788-1	WN1762-5	WN1762-2	WN1762-3	WN1762-4
QC_TYPE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS	89 0 %	79 0 %	65 0 %	86 0 %	88 0 %
FIELD DUPLICATE OF:					OFF-S-TP-17-0809

	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
VOLATILES															
1,1,1-TRICHLOROETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
1,1,2,2-TETRACHLOROETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
1,1,2-TRICHLOROETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
1,1-DICHLOROETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
1,1-DICHLOROETHENE	1400	UJ	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
1,2-DICHLOROETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
1,2-DICHLOROPROPANE	1400	U	UG/KG	130	UJ	UG/KG	150	UJ	UG/KG	120	UJ	UG/KG	110	UJ	UG/KG
2-BUTANONE	1400	UJ	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
2-HEXANONE	1400	UJ	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
4-METHYL-2-PENTANONE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
ACETONE	1400	UJ	UG/KG	130	U	UG/KG	270	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
BENZENE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
BROMODICHLOROMETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
BROMOFORM	1400	U	UG/KG	130	UJ	UG/KG	150	UJ	UG/KG	120	UJ	UG/KG	110	UJ	UG/KG
BROMOMETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
CARBON DISULFIDE	1400	UJ	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
CARBON TETRACHLORIDE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
CHLOROBENZENE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
CHLOROETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
CHLOROFORM	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
CHLOROMETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
CIS-1,3-DICHLOROPROPENE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
DIBROMOCHLOROMETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
ETHYLBENZENE	1400	U	UG/KG	630	J	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
METHYLENE CHLORIDE	1400	UJ	UG/KG	100	J	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
STYRENE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
TETRACHLOROETHENE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
TOLUENE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
TOTAL 1,2-DICHLOROETHENE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
TRANS-1,3-DICHLOR PROPENE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
TRICHLOROETHENE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
VINYL CHLORIDE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
XYLENES, TOTAL	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG

NETC NEWPORT CTO 288
SOIL DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER:	OFF-S-DUPL6	OFF-S-MW101-0606	OFF-S-MW102-0608	OFF-S-SS1-0005	OFF-S-SS2-0005
SAMPLE DATE:	07/11/97	07/09/97	07/07/97	07/11/97	07/11/97
LABORATORY ID	WN1818-6	WN1788-1	WN1762-5	WN1818-1	WN1818-2
QC_TYPE.	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	86 0 %	89 0 %	79 0 %	77 0 %	96 0 %
FIELD DUPLICATE OF:	OFF-A-SS1-0005				

	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS
SEMIVOLATILES					
1,2,4-TRICHLOROBENZENE	400 U UG/KG	360 UJ UG/KG	430 UJ UG/KG	430 U UG/KG	330 U UG/KG
1,2-DICHLOROBENZENE	400 U UG/KG	360 UJ UG/KG	430 U UG/KG	430 U UG/KG	330 U UG/KG
1,3-DICHLOROBENZENE	400 U UG/KG	360 UJ UG/KG	430 U UG/KG	430 U UG/KG	330 U UG/KG
1,4-DICHLOROBENZENE	400 U UG/KG	360 UJ UG/KG	430 U UG/KG	430 U UG/KG	330 UJ UG/KG
2,2'-OXYBIS(1-CHLOROPROPANE)	400 U UG/KG	360 UJ UG/KG	430 UJ UG/KG	430 U UG/KG	330 U UG/KG
2,4,5-TRICHLOROPHENOL	1000 U UG/KG	910 U UG/KG	1100 UR UG/KG	1100 U UG/KG	830 U UG/KG
2,4,6-TRICHLOROPHENOL	400 U UG/KG	360 U UG/KG	430 UR UG/KG	430 U UG/KG	330 U UG/KG
2,4-DICHLOROPHENOL	400 U UG/KG	360 U UG/KG	430 UJ UG/KG	430 U UG/KG	330 U UG/KG
2,4-DIMETHYLPHENOL	400 U UG/KG	360 U UG/KG	430 UJ UG/KG	430 U UG/KG	330 U UG/KG
2,4-DINITROPHENOL	1000 U UG/KG	910 U UG/KG	1100 UR UG/KG	1100 U UG/KG	830 U UG/KG
2,4-DINITROTOLUENE	400 U UG/KG	360 UJ UG/KG	430 UR UG/KG	430 U UG/KG	330 U UG/KG
2,6-DINITROTOLUENE	400 U UG/KG	360 UJ UG/KG	430 UR UG/KG	430 U UG/KG	330 U UG/KG
2-CHLORONAPHTHALENE	400 U UG/KG	360 UJ UG/KG	430 UR UG/KG	430 U UG/KG	330 U UG/KG
2-CHLOROPHENOL	400 U UG/KG	360 U UG/KG	430 U UG/KG	430 U UG/KG	330 U UG/KG
2-METHYLNAPHTHALENE	400 UJ UG/KG	11000 UG/KG	4300 J UG/KG	220 J UG/KG	330 U UG/KG
2-METHYLPHENOL	400 U UG/KG	360 U UG/KG	430 U UG/KG	430 U UG/KG	330 U UG/KG
2-NITROANILINE	1000 U UG/KG	910 UJ UG/KG	1100 UR UG/KG	1100 U UG/KG	830 U UG/KG
2-NITROPHENOL	400 U UG/KG	360 U UG/KG	430 UJ UG/KG	430 U UG/KG	330 U UG/KG
3,3'-DICHLOROBENZIDINE	400 U UG/KG	360 UJ UG/KG	430 UJ UG/KG	430 U UG/KG	330 U UG/KG
3-NITROANILINE	1000 U UG/KG	910 UJ UG/KG	1100 UR UG/KG	1100 U UG/KG	830 U UG/KG
4,6-DINITRO-2-METHYLPHENOL	1000 U UG/KG	910 UJ UG/KG	1100 UR UG/KG	1100 U UG/KG	830 U UG/KG
4-BROMOPHENYL PHENYL ETHER	400 U UG/KG	360 UJ UG/KG	430 UR UG/KG	430 U UG/KG	330 U UG/KG
4-CHLORO-3-METHYLPHENOL	400 U UG/KG	360 U UG/KG	430 UJ UG/KG	430 U UG/KG	330 U UG/KG
4-CHLOROANILINE	400 U UG/KG	360 UJ UG/KG	430 UJ UG/KG	430 U UG/KG	330 U UG/KG
4-CHLOROPHENYL PHENYL ETHER	400 U UG/KG	360 UJ UG/KG	430 UR UG/KG	430 U UG/KG	330 U UG/KG
4-METHYLPHENOL	400 U UG/KG	360 U UG/KG	430 U UG/KG	430 U UG/KG	330 U UG/KG
4-NITROANILINE	1000 U UG/KG	910 UJ UG/KG	1100 UR UG/KG	1100 U UG/KG	830 U UG/KG
4-NITROPHENOL	1000 U UG/KG	910 U UG/KG	1100 U UG/KG	1100 U UG/KG	830 U UG/KG
ACENAPHTHENE	310 J UG/KG	360 UJ UG/KG	430 UR UG/KG	370 J UG/KG	330 U UG/KG
ACENAPHTHYLENE	430 UG/KG	360 UJ UG/KG	430 UR UG/KG	890 UG/KG	330 U UG/KG
ANTHRACENE	1000 UG/KG	890 J UG/KG	4800 UG/KG	1300 UG/KG	330 U UG/KG
BENZO(A)ANTHRACENE	2400 UG/KG	470 UG/KG	3400 UG/KG	3300 J UG/KG	250 J UG/KG
BENZO(A)PYRENE	2000 UG/KG	380 UG/KG	4000 UG/KG	2500 UG/KG	210 J UG/KG

NETC NEWPORT CT 288
SOIL DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER:	OFF-S-DUPL6		OFF-S-MW101-0608		OFF-S-MW102-0608		OFF-S-SS1-0005		OFF-S-SS2-0005	
SAMPLE DATE:	07/11/97		07/09/97		07/07/97		07/11/97		07/11/97	
LABORATORY ID	WN1818-6		WN1788-1		WN1762-5		WN1818-1		WN1818-2	
QC_TYPE	NORMAL		NORMAL		NORMAL		NORMAL		NORMAL	
% SOLIDS	86 0 %		89 0 %		79 0 %		77 0 %		96 0 %	
FIELD DUPLICATE OF:	OFF-A-SS1-0005									
	RESULT QUAL UNITS		RESULT QUAL UNITS		RESULT QUAL UNITS		RESULT QUAL UNITS		RESULT QUAL UNITS	
SEMIVOLATILES										
BENZO(B)FLUORANTHENE	2200	UG/KG	260	J UG/KG	2700	J UG/KG	2700	UG/KG	180	J UG/KG
BENZO(G,H,I)PERYLENE	1000	UG/KG	180	J UG/KG	1900	J UG/KG	1500	UG/KG	110	J UG/KG
BENZO(K)FLUORANTHENE	1000	UG/KG	310	J UG/KG	2200	J UG/KG	1900	J UG/KG	190	J UG/KG
BIS(2-CHLOROETHOXY)METHANE	400	U UG/KG	360	UJ UG/KG	430	UJ UG/KG	430	U UG/KG	330	U UG/KG
BIS(2-CHLOROETHYL)ETHER	400	U UG/KG	360	UJ UG/KG	430	U UG/KG	430	U UG/KG	330	U UG/KG
BIS(2-ETHYLHEXYL)PHTHALATE	17000	U UG/KG	360	UJ UG/KG	430	UJ UG/KG	430	U UG/KG	330	U UG/KG
BUTYLBENZYL PHTHALATE	400	U UG/KG	360	UJ UG/KG	430	UJ UG/KG	430	U UG/KG	330	U UG/KG
CARBAZOLE	230	J UG/KG	360	UJ UG/KG	430	UR UG/KG	310	J UG/KG	330	U UG/KG
CHRYSENE	2200	UG/KG	430	UG/KG	3200	J UG/KG	3100	UG/KG	220	J UG/KG
DI-N-BUTYL PHTHALATE	400	U UG/KG	360	UJ UG/KG	430	UR UG/KG	430	U UG/KG	330	U UG/KG
DI-N-OCTYL PHTHALATE	400	UJ UG/KG	360	UJ UG/KG	430	UJ UG/KG	430	UJ UG/KG	330	UJ UG/KG
DIBENZO(A,H)ANTHRACENE	520	UG/KG	360	UJ UG/KG	820	J UG/KG	610	UG/KG	330	U UG/KG
DIBENZOFURAN	320	J UG/KG	830	UG/KG	430	UR UG/KG	410	J UG/KG	330	U UG/KG
DIETHYL PHTHALATE	400	U UG/KG	360	UJ UG/KG	430	UR UG/KG	430	U UG/KG	330	U UG/KG
DIMETHYL PHTHALATE	400	U UG/KG	360	UJ UG/KG	430	UR UG/KG	430	U UG/KG	330	U UG/KG
FLUORANTHENE	7900	UG/KG	2500	J UG/KG	16000	UG/KG	7000	UG/KG	510	UG/KG
FLUORENE	550	UG/KG	1200	J UG/KG	430	UR UG/KG	760	UG/KG	330	U UG/KG
HEXACHLOROBENZENE	400	U UG/KG	360	UJ UG/KG	430	UR UG/KG	430	U UG/KG	330	U UG/KG
HEXACHLOROBUTADIENE	400	U UG/KG	360	UJ UG/KG	430	UJ UG/KG	430	U UG/KG	330	U UG/KG
HEXACHLOROCYCLOPENTADIENE	400	U UG/KG	360	UJ UG/KG	430	U UG/KG	430	U UG/KG	330	U UG/KG
HEXACHLOROETHANE	400	U UG/KG	360	UJ UG/KG	430	U UG/KG	430	U UG/KG	330	U UG/KG
INDENO(1,2,3-CD)PYRENE	1200	UG/KG	210	J UG/KG	2300	J UG/KG	1600	UG/KG	120	J UG/KG
ISOPHORONE	400	U UG/KG	360	UJ UG/KG	430	UJ UG/KG	430	U UG/KG	330	U UG/KG
N-NITROSO-DI-N-PROPYLAMINE	400	U UG/KG	360	UJ UG/KG	430	U UG/KG	430	U UG/KG	330	U UG/KG
N-NITROSODIPHENYLAMINE	400	U UG/KG	360	UJ UG/KG	430	UR UG/KG	430	U UG/KG	330	U UG/KG
NAPHTHALENE	400	U UG/KG	3700	J UG/KG	430	UJ UG/KG	200	J UG/KG	330	U UG/KG
NITROBENZENE	400	U UG/KG	360	UJ UG/KG	430	UJ UG/KG	430	U UG/KG	330	U UG/KG
PENTACHLOROPHENOL	1000	U UG/KG	910	UJ UG/KG	1100	UR UG/KG	1100	U UG/KG	830	U UG/KG
PHENANTHRENE	4700	UG/KG	3800	UG/KG	12000	UG/KG	5700	UG/KG	350	UG/KG
PHENOL	400	U UG/KG	360	U UG/KG	430	U UG/KG	430	U UG/KG	330	U UG/KG
PYRENE	5500	J UG/KG	970	J UG/KG	5300	UG/KG	9800	J UG/KG	630	UG/KG

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SOIL DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER:	OFF-S-SS3-0000		OFF-S-SS4-0005		OFF-S-SS5-0005		OFF-S-TP-16-1011		OFF-S-TP-17-0809	
SAMPLE DATE:	07/11/97		07/11/97		07/11/97		07/07/97		07/07/97	
LABORATORY ID	WN1818-3		WN1818-4		WN1818-5		WN1762-2		WN1762-3	
QC_TYPE	NORMAL		NORMAL		NORMAL		NORMAL		NORMAL	
% SOLIDS:	99 0 %		98 0 %		96 0 %		65 0 %		86 0 %	
FIELD DUPLICATE OF:										
	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS
SEMIVOLATILES										
1,2,4-TRICHLOROBENZENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
1,2-DICHLOROBENZENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
1,3-DICHLOROBENZENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
1,4-DICHLOROBENZENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
2,2'-OXYBIS(1-CHLOROPROPANE)	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	UJ UG/KG
2,4,5-TRICHLOROPHENOL	830	U UG/KG	830	U UG/KG	830	U UG/KG	12000	U UG/KG	1000	U UG/KG
2,4,6-TRICHLOROPHENOL	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
2,4-DICHLOROPHENOL	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
2,4-DIMETHYLPHENOL	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
2,4-DINITROPHENOL	830	U UG/KG	830	U UG/KG	830	U UG/KG	12000	U UG/KG	1000	U UG/KG
2,4-DINITROTOLUENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
2,6-DINITROTOLUENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
2-CHLORONAPHTHALENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
2-CHLOROPHENOL	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
2-METHYLNAPHTHALENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	690	UG/KG
2-METHYLPHENOL	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
2-NITROANILINE	830	U UG/KG	830	U UG/KG	830	U UG/KG	12000	U UG/KG	1000	U UG/KG
2-NITROPHENOL	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
3,3'-DICHLOROBENZIDINE	330	UJ UG/KG	330	U UG/KG	330	U UG/KG	5000	UJ UG/KG	400	U UG/KG
3-NITROANILINE	830	U UG/KG	830	U UG/KG	830	U UG/KG	12000	U UG/KG	1000	U UG/KG
4,6-DINITRO-2-METHYLPHENOL	830	UJ UG/KG	830	U UG/KG	830	U UG/KG	12000	U UG/KG	1000	U UG/KG
4-BROMOPHENYL PHENYL ETHER	330	UJ UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
4-CHLORO-3-METHYLPHENOL	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
4-CHLOROANILINE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
4-CHLOROPHENYL PHENYL ETHER	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
4-METHYLPHENOL	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
4-NITROANILINE	830	U UG/KG	830	U UG/KG	830	U UG/KG	12000	U UG/KG	1000	U UG/KG
4-NITROPHENOL	830	U UG/KG	830	U UG/KG	830	U UG/KG	12000	U UG/KG	1000	U UG/KG
ACENAPHTHENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
ACENAPHTHYLENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
ANTHRACENE	330	UJ UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
BENZO(A)ANTHRACENE	220	J UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
BENZO(A)PYRENE	590	J UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG

NETC NEWPORT CTO 288
SOIL DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER:	OFF-S-SS3-0000		OFF-S-SS4-0005		OFF-S-SS5-0005		OFF-S-TP-16-1011		OFF-S-TP-17-0809	
SAMPLE DATE:	07/11/97		07/11/97		07/11/97		07/07/97		07/07/97	
LABORATORY ID	WN1818-3		WN1818-4		WN1818-5		WN1762-2		WN1762-3	
QC_TYPE	NORMAL		NORMAL		NORMAL		NORMAL		NORMAL	
% SOLIDS	99 0 %		98 0 %		96 0 %		65 0 %		86 0 %	
FIELD DUPLICATE OF.										
	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS
SEMIVOLATILES										
BENZO(B)FLUORANTHENE	380	J UG/KG	330	U UG/KG	330	U UG/KG	300	J UG/KG	400	U UG/KG
BENZO(G,H,I)PERYLENE	460	J UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
BENZO(K)FLUORANTHENE	220	J UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
BIS(2-CHLOROETHOXY)METHANE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
BIS(2-CHLOROETHYL)ETHER	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
BIS(2-ETHYLHEXYL)PHTHALATE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
BUTYLBENZYL PHTHALATE	330	UJ UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
CARBAZOLE	330	UJ UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
CHRYSENE	450	J UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
DI-N-BUTYL PHTHALATE	330	UJ UG/KG	330	UJ UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
DI-N-OCTYL PHTHALATE	330	UR UG/KG	330	U UG/KG	330	U UG/KG	5000	UJ UG/KG	400	UJ UG/KG
DIBENZO(A,H)ANTHRACENE	330	UR UG/KG	330	U UG/KG	330	U UG/KG	5000	UJ UG/KG	400	U UG/KG
DIBENZOFURAN	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
DIETHYL PHTHALATE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
DIMETHYL PHTHALATE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
FLUORANTHENE	390	J UG/KG	330	U UG/KG	200	J UG/KG	910	J UG/KG	400	U UG/KG
FLUORENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
HEXACHLOROBENZENE	330	UJ UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
HEXACHLOROBUTADIENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
HEXACHLOROCYCLOPENTADIENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	UJ UG/KG	400	U UG/KG
HEXACHLOROETHANE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
INDENO(1,2,3-CD)PYRENE	200	J UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
ISOPHORONE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
N-NITROSO-DI-N-PROPYLAMINE	330	UJ UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
N-NITROSODIPHENYLAMINE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
NAPHTHALENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
NITROBENZENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
PENTACHLOROPHENOL	830	UJ UG/KG	830	U UG/KG	830	U UG/KG	12000	U UG/KG	1000	U UG/KG
PHENANTHRENE	330	UJ UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	240	J UG/KG
PHENOL	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
PYRENE	1800	J UG/KG	330	U UG/KG	240	J UG/KG	1300	J UG/KG	400	U UG/KG

NETC NEWPORT CTO 288
SOIL DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER:	OFF-S-DUPL3									
SAMPLE DATE:	07/07/97		/ /		/ /		/ /		/ /	
LABORATORY ID	WN1762-4									
QC_TYPE	NORMAL									
% SOLIDS.	88 0 %		100.0 %		100 0 %		100 0 %		100 0 %	
FIELD DUPLICATE OF:	OFF-S-TP-17-0809									
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
SEMIVOLATILES												
1,2,4-TRICHLOROBENZENE	360	U	UG/KG									
1,2-DICHLOROBENZENE	360	U	UG/KG									
1,3-DICHLOROBENZENE	360	U	UG/KG									
1,4-DICHLOROBENZENE	360	U	UG/KG									
2,2'-OXYBIS(1-CHLOROPROPANE)	360	UJ	UG/KG									
2,4,5-TRICHLOROPHENOL	910	U	UG/KG									
2,4,6-TRICHLOROPHENOL	360	U	UG/KG									
2,4-DICHLOROPHENOL	360	U	UG/KG									
2,4-DIMETHYLPHENOL	360	U	UG/KG									
2,4-DINITROPHENOL	910	U	UG/KG									
2,4-DINITROTOLUENE	360	U	UG/KG									
2,6-DINITROTOLUENE	360	U	UG/KG									
2-CHLORONAPHTHALENE	360	U	UG/KG									
2-CHLOROPHENOL	360	U	UG/KG									
2-METHYLNAPHTHALENE	650		UG/KG									
2-METHYLPHENOL	360	U	UG/KG									
2-NITROANILINE	910	U	UG/KG									
2-NITROPHENOL	360	U	UG/KG									
3,3'-DICHLOROBENZIDINE	360	U	UG/KG									
3-NITROANILINE	910	U	UG/KG									
4,6-DINITRO-2-METHYLPHENOL	910	U	UG/KG									
4-BROMOPHENYL PHENYL ETHER	360	U	UG/KG									
4-CHLORO-3-METHYLPHENOL	360	U	UG/KG									
4-CHLOROANILINE	360	U	UG/KG									
4-CHLOROPHENYL PHENYL ETHER	360	U	UG/KG									
4-METHYLPHENOL	360	U	UG/KG									
4-NITROANILINE	910	U	UG/KG									
4-NITROPHENOL	910	U	UG/KG									
ACENAPHTHENE	360	U	UG/KG									
ACENAPHTHYLENE	360	U	UG/KG									
ANTHRACENE	360	U	UG/KG									
BENZO(A)ANTHRACENE	360	U	UG/KG									
BENZO(A)PYRENE	360	U	UG/KG									

NETC NEWPORT CTO 288
SOIL DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER:	OFF-S-DUPL3				
SAMPLE DATE:	07/07/97	/ /	/ /	/ /	/ /
LABORATORY ID	WN1762-4				
QC_TYPE	NORMAL				
% SOLIDS	88 0 %	100 0 %	100 0 %	100 0 %	100 0 %
FIELD DUPLICATE OF:	OFF-S-TP-17-0809				

	RESULT	QUAL	UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS
SEMIVOLATILES							
BENZO(B)FLUORANTHENE	360	U	UG/KG				
BENZO(G,H,I)PERYLENE	360	U	UG/KG				
BENZO(K)FLUORANTHENE	360	U	UG/KG				
BIS(2-CHLOROETHOXY)METHANE	360	U	UG/KG				
BIS(2-CHLOROETHYL)ETHER	360	U	UG/KG				
BIS(2-ETHYLHEXYL)PHTHALATE	360	U	UG/KG				
BUTYLBENZYL PHTHALATE	360	U	UG/KG				
CARBAZOLE	360	U	UG/KG				
CHRYSENE	360	U	UG/KG				
DI-N-BUTYL PHTHALATE	360	U	UG/KG				
DI-N-OCTYL PHTHALATE	360	UJ	UG/KG				
DIBENZO(A,H)ANTHRACENE	360	U	UG/KG				
DIBENZOFURAN	360	U	UG/KG				
DIETHYL PHTHALATE	360	U	UG/KG				
DIMETHYL PHTHALATE	360	U	UG/KG				
FLUORANTHENE	360	U	UG/KG				
FLUORENE	120	J	UG/KG				
HEXACHLOROBENZENE	360	U	UG/KG				
HEXACHLOROBUTADIENE	360	U	UG/KG				
HEXACHLOROCYCLOPENTADIENE	360	U	UG/KG				
HEXACHLOROETHANE	360	U	UG/KG				
INDENO(1,2,3-CD)PYRENE	360	U	UG/KG				
ISOPHORONE	360	U	UG/KG				
N-NITROSO-DI-N-PROPYLAMINE	360	U	UG/KG				
N-NITROSODIPHENYLAMINE	360	U	UG/KG				
NAPHTHALENE	140	J	UG/KG				
NITROBENZENE	360	U	UG/KG				
PENTACHLOROPHENOL	910	U	UG/KG				
PHENANTHRENE	190	J	UG/KG				
PHENOL	360	U	UG/KG				
PYRENE	360	U	UG/KG				

CTO288 - NETC NEWPORT
WATER DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER:	OFF-A-TP-17-0809-RB			/ /		/ /		/ /		/ /
SAMPLE DATE:	07/07/97									
LABORATORY ID	WN1762-6									
QC_TYPE	NORMAL									
% SOLIDS.	0 0 %			100 0 %		100 0 %		100 0 %		100 0 %
FIELD DUPLICATE OF:										
	RESULT	QUAL	UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS
PESTICIDES/PCBs										
4,4'-DDD	0 10	U	UG/L							
4,4'-DDE	0 10	U	UG/L							
4,4'-DDT	0 10	U	UG/L							
ALDRIN	0 050	U	UG/L							
ALPHA-BHC	0 050	UJ	UG/L							
ALPHA-CHLORDANE	0 050	U	UG/L							
AROCLOR-1016	1 0	U	UG/L							
AROCLOR-1221	2 0	U	UG/L							
AROCLOR-1232	1 0	U	UG/L							
AROCLOR-1242	1 0	U	UG/L							
AROCLOR-1248	1 0	U	UG/L							
AROCLOR-1254	1 0	U	UG/L							
AROCLOR-1260	1 0	U	UG/L							
BETA-BHC	0 050	U	UG/L							
DELTA-BHC	0 050	U	UG/L							
DIELDRIN	0 10	U	UG/L							
ENDOSULFAN I	0 050	U	UG/L							
ENDOSULFAN II	0 10	U	UG/L							
ENDOSULFAN SULFATE	0 10	U	UG/L							
ENDRIN	0 10	U	UG/L							
ENDRIN ALDEHYDE	0 10	U	UG/L							
ENDRIN KETONE	0 10	UJ	UG/L							
GAMMA-BHC (LINDANE)	0 050	U	UG/L							
GAMMA-CHLORDANE	0 050	U	UG/L							
HEPTACHLOR	0 050	UJ	UG/L							
HEPTACHLOR EPOXIDE	0 050	U	UG/L							
METHOXYCHLOR	0 50	U	UG/L							
TOXAPHENE	5 0	U	UG/L							

NETC NEWPORT CTO 288
SOIL DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER:	OFF-S-DUPL6	OFF-S-MW101-0608	OFF-S-MW102-0608	OFF-S-SS1-0005	OFF-S-SS2-0005
SAMPLE DATE:	07/11/97	07/09/97	07/07/97	07/11/97	07/11/97
LABORATORY ID:	WN1818-6	WN1788-1	WN1762-5	WN1818-1	WN1818-2
QC_TYPE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS	86 0 %	89 0 %	79 0 %	77 0 %	96 0 %
FIELD DUPLICATE OF:	OFF-A-SS1-0005				

	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
PESTICIDES/PCBs															
4,4'-DDD	3 8	U	UG/KG	3 7	U	UG/KG	4 2	UJ	UG/KG	4 3	UJ	UG/KG	3 4	UJ	UG/KG
4,4'-DDE	3 8	U	UG/KG	3 7	U	UG/KG	4 2	UJ	UG/KG	4 3	UJ	UG/KG	3 4	UJ	UG/KG
4,4'-DDT	3 8	U	UG/KG	3 7	U	UG/KG	4 2	UJ	UG/KG	4 3	UJ	UG/KG	3 4	UJ	UG/KG
ALDRIN	2 0	U	UG/KG	1 9	U	UG/KG	2 2	UJ	UG/KG	2 2	UJ	UG/KG	1 8	UJ	UG/KG
ALPHA-BHC	2 0	UJ	UG/KG	1 9	UJ	UG/KG	2 2	UJ	UG/KG	2 2	UJ	UG/KG	1 8	UJ	UG/KG
ALPHA-CHLORDANE	2.0	U	UG/KG	1.9	U	UG/KG	2.2	UJ	UG/KG	2 2	UJ	UG/KG	1 8	UJ	UG/KG
AROCLOR-1016	38	U	UG/KG	37	U	UG/KG	42	UJ	UG/KG	43	UJ	UG/KG	34	UJ	UG/KG
AROCLOR-1221	78	U	UG/KG	75	U	UG/KG	85	UJ	UG/KG	87	UJ	UG/KG	70	UJ	UG/KG
AROCLOR-1232	38	U	UG/KG	37	U	UG/KG	42	UJ	UG/KG	43	UJ	UG/KG	34	UJ	UG/KG
AROCLOR-1242	38	U	UG/KG	37	U	UG/KG	42	UJ	UG/KG	43	UJ	UG/KG	34	UJ	UG/KG
AROCLOR-1248	38	U	UG/KG	37	U	UG/KG	42	UJ	UG/KG	43	UJ	UG/KG	34	UJ	UG/KG
AROCLOR-1254	38	U	UG/KG	37	U	UG/KG	42	UJ	UG/KG	43	UJ	UG/KG	34	UJ	UG/KG
AROCLOR-1260	38	U	UG/KG	37	U	UG/KG	42	UJ	UG/KG	43	UJ	UG/KG	34	UJ	UG/KG
BETA-BHC	2 0	U	UG/KG	1 9	U	UG/KG	2 2	UJ	UG/KG	2 2	UJ	UG/KG	1 8	UJ	UG/KG
DELTA-BHC	2 0	U	UG/KG	1 9	U	UG/KG	2 2	UJ	UG/KG	2 2	UJ	UG/KG	1 8	UJ	UG/KG
DIELDRIN	3 8	U	UG/KG	3 7	U	UG/KG	4 2	UJ	UG/KG	4 3	UJ	UG/KG	3 4	UJ	UG/KG
ENDOSULFAN I	2 0	U	UG/KG	1 9	U	UG/KG	2 2	UJ	UG/KG	2 2	UJ	UG/KG	1 8	UJ	UG/KG
ENDOSULFAN II	3 8	U	UG/KG	3 7	U	UG/KG	4 2	UJ	UG/KG	4 3	UJ	UG/KG	3 4	UJ	UG/KG
ENDOSULFAN SULFATE	3 8	U	UG/KG	3 7	U	UG/KG	4 2	UJ	UG/KG	4 3	UJ	UG/KG	3 4	UJ	UG/KG
ENDRIN	3 8	U	UG/KG	3 7	U	UG/KG	4 2	UJ	UG/KG	4 3	UJ	UG/KG	3 4	UJ	UG/KG
ENDRIN ALDEHYDE	3 8	U	UG/KG	3 7	U	UG/KG	4 2	UJ	UG/KG	4 3	UJ	UG/KG	3 4	UJ	UG/KG
ENDRIN KETONE	3 8	UJ	UG/KG	3 7	UJ	UG/KG	4 2	UJ	UG/KG	4 3	UJ	UG/KG	3 4	UJ	UG/KG
GAMMA-BHC (LINDANE)	2 0	U	UG/KG	1 9	U	UG/KG	2 2	UJ	UG/KG	2 2	UJ	UG/KG	1 8	UJ	UG/KG
GAMMA-CHLORDANE	2 0	U	UG/KG	1 9	U	UG/KG	2 2	UJ	UG/KG	2 2	UJ	UG/KG	1 8	UJ	UG/KG
HEPTACHLOR	2 0	UJ	UG/KG	1 9	UJ	UG/KG	2 2	UJ	UG/KG	2 2	UJ	UG/KG	1 8	UJ	UG/KG
HEPTACHLOR EPOXIDE	2 0	U	UG/KG	1.9	U	UG/KG	2 2	UJ	UG/KG	2 2	UJ	UG/KG	1 8	UJ	UG/KG
METHOXYCHLOR	20	U	UG/KG	19	U	UG/KG	22	UJ	UG/KG	22	UJ	UG/KG	18	UJ	UG/KG
TOXAPHENE	200	U	UG/KG	190	U	UG/KG	220	UJ	UG/KG	220	UJ	UG/KG	180	UJ	UG/KG

NETC NEWPORT CTO 288
SOIL DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER:	OFF-S-SS3-0000		OFF-S-SS4-0005		OFF-S-SS5-0005		OFF-S-TP-16-1011		OFF-S-TP-17-0809	
SAMPLE DATE:	07/11/97		07/11/97		07/11/97		07/07/97		07/07/97	
LABORATORY ID	WN1818-3		WN1818-4		WN1818-5		WN1762-2		WN1762-3	
QC_TYPE	NORMAL		NORMAL		NORMAL		NORMAL		NORMAL	
% SOLIDS	99 0 %		98 0 %		96 0 %		65.0 %		86 0 %	
FIELD DUPLICATE OF:										
	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS
PESTICIDES/PCBs										
4,4'-DDD	3 3	U UG/KG	3 4	UJ UG/KG	3.4	U UG/KG	5 1	UJ UG/KG	3 8	U UG/KG
4,4'-DDE	3 3	U UG/KG	3.4	UJ UG/KG	3.6	UG/KG	5 1	UJ UG/KG	3 8	U UG/KG
4,4'-DDT	3.3	U UG/KG	3 4	UJ UG/KG	11	UG/KG	5 1	UJ UG/KG	3 8	U UG/KG
ALDRIN	1 7	U UG/KG	1.7	UJ UG/KG	1 8	U UG/KG	2 6	UJ UG/KG	2 0	U UG/KG
ALPHA-BHC	1 7	UJ UG/KG	1 7	UJ UG/KG	1 8	UJ UG/KG	2 6	UJ UG/KG	2 0	UJ UG/KG
ALPHA-CHLORDANE	1 7	U UG/KG	1 7	UJ UG/KG	1.8	U UG/KG	2 6	UJ UG/KG	2 0	U UG/KG
AROCLOR-1016	33	U UG/KG	34	UJ UG/KG	34	U UG/KG	51	UJ UG/KG	38	U UG/KG
AROCLOR-1221	68	U UG/KG	68	UJ UG/KG	70	U UG/KG	100	UJ UG/KG	78	U UG/KG
AROCLOR-1232	33	U UG/KG	34	UJ UG/KG	34	U UG/KG	51	UJ UG/KG	38	U UG/KG
AROCLOR-1242	33	U UG/KG	34	UJ UG/KG	34	U UG/KG	51	UJ UG/KG	38	U UG/KG
AROCLOR-1248	33	U UG/KG	34	UJ UG/KG	34	U UG/KG	51	UJ UG/KG	38	U UG/KG
AROCLOR-1254	33	U UG/KG	34	UJ UG/KG	34	U UG/KG	51	UJ UG/KG	38	U UG/KG
AROCLOR-1260	33	U UG/KG	34	UJ UG/KG	34	U UG/KG	51	UJ UG/KG	38	U UG/KG
BETA-BHC	1 7	U UG/KG	1 7	UJ UG/KG	1 8	U UG/KG	2 6	UJ UG/KG	2 0	U UG/KG
DELTA-BHC	1 7	U UG/KG	1 7	UJ UG/KG	1 8	U UG/KG	2 6	UJ UG/KG	2 0	U UG/KG
DIELDRIN	3 3	U UG/KG	3 4	UJ UG/KG	3 4	U UG/KG	5 1	UJ UG/KG	3 8	U UG/KG
ENDOSULFAN I	1 7	U UG/KG	1.7	UJ UG/KG	1 8	U UG/KG	2 6	UJ UG/KG	2 0	U UG/KG
ENDOSULFAN II	3 3	U UG/KG	3.4	UJ UG/KG	3 4	U UG/KG	5 1	UJ UG/KG	3 8	U UG/KG
ENDOSULFAN SULFATE	3 3	U UG/KG	3 4	UJ UG/KG	3 4	U UG/KG	5 1	UJ UG/KG	3 8	U UG/KG
ENDRIN	3 3	U UG/KG	3 4	UJ UG/KG	3 4	U UG/KG	5 1	UJ UG/KG	3 8	U UG/KG
ENDRIN ALDEHYDE	3 3	U UG/KG	3 4	UJ UG/KG	3 4	U UG/KG	5 1	UJ UG/KG	3 8	U UG/KG
ENDRIN KETONE	3 3	UJ UG/KG	3.4	UJ UG/KG	3 4	UJ UG/KG	5.1	UJ UG/KG	3 8	UJ UG/KG
GAMMA-BHC (LINDANE)	1 7	U UG/KG	1.7	UJ UG/KG	1 8	U UG/KG	2 6	UJ UG/KG	2 0	U UG/KG
GAMMA-CHLORDANE	1 7	U UG/KG	1.7	UJ UG/KG	1.8	U UG/KG	2 6	UJ UG/KG	2 0	U UG/KG
HEPTACHLOR	1 7	UJ UG/KG	1 7	UJ UG/KG	1 8	UJ UG/KG	2 6	UJ UG/KG	2 0	UJ UG/KG
HEPTACHLOR EPOXIDE	1.7	U UG/KG	1.7	UJ UG/KG	1.8	U UG/KG	2 6	UJ UG/KG	2.0	U UG/KG
METHOXYCHLOR	17	U UG/KG	17	UJ UG/KG	18	U UG/KG	26	UJ UG/KG	20	U UG/KG
TOXAPHENE	170	U UG/KG	170	UJ UG/KG	180	U UG/KG	260	UJ UG/KG	200	U UG/KG

NETC NEWPORT CTO 288
SOIL DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER:	OFF-S-DUPL3				
SAMPLE DATE:	07/07/97	/ /	/ /	/ /	/ /
LABORATORY ID:	WN1762-4				
QC_TYPE:	NORMAL				
% SOLIDS	88.0 %	100.0 %	100.0 %	100.0 %	100.0 %
FIELD DUPLICATE OF:	OFF-S-TP-17-0809				

	RESULT	QUAL	UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS
PESTICIDES/PCBs							
4,4'-DDD	3.8	U	UG/KG				
4,4'-DDE	3.8	U	UG/KG				
4,4'-DDT	3.8	U	UG/KG				
ALDRIN	1.9	U	UG/KG				
ALPHA-BHC	1.9	UJ	UG/KG				
ALPHA-CHLORDANE	1.9	U	UG/KG				
AROCLOR-1016	38	U	UG/KG				
AROCLOR-1221	76	U	UG/KG				
AROCLOR-1232	38	U	UG/KG				
AROCLOR-1242	38	U	UG/KG				
AROCLOR-1248	38	U	UG/KG				
AROCLOR-1254	38	U	UG/KG				
AROCLOR-1260	38	U	UG/KG				
BETA-BHC	1.9	U	UG/KG				
DELTA-BHC	1.9	U	UG/KG				
DIELDRIN	3.8	U	UG/KG				
ENDOSULFAN I	1.9	U	UG/KG				
ENDOSULFAN II	3.8	U	UG/KG				
ENDOSULFAN SULFATE	3.8	U	UG/KG				
ENDRIN	3.8	U	UG/KG				
ENDRIN ALDEHYDE	3.8	U	UG/KG				
ENDRIN KETONE	3.8	UJ	UG/KG				
GAMMA-BHC (LINDANE)	1.9	U	UG/KG				
GAMMA-CHLORDANE	1.9	U	UG/KG				
HEPTACHLOR	1.9	UJ	UG/KG				
HEPTACHLOR EPOXIDE	1.9	U	UG/KG				
METHOXYCHLOR	19	U	UG/KG				
TOXAPHENE	190	U	UG/KG				

FTA002

TOTAL PETROLEUM HYDROCARBONS

7572-5.1

Brown & Root Environmental

INTERNAL CORRESPONDENCE

C-49-08-7-222

TO: D. CONAN

DATE: SEPTEMBER 15, 1997

FR M: TERRI L. SOLOMON

COPIES: DV FILE

SUBJECT: INORGANIC DATA VALIDATION - TOTAL PETROLEUM HYDROCARBONS
CTO 288 - NETC NEWPORT, NEWPORT, RHODE ISLAND
SDG - FTA002

SAMPLES: 11/Soils/

OFF-S-TP-16-1011	OFF-S-TP-17-0809	OFF-S-DUPL3
OFF-S-MW102-0808	OFF-S-MW101-0808	OFF-S-SS1-0005
OFF-S-SS2-0005	OFF-S-SS3-0000	OFF-S-SS4-005
OFF-S-SS5-0005	OFF-S-DUPL6	

1/Aqueous/

OFF-A-TP-17-0809-RB5

Overview

The sample set for CTO 288, NETC Newport, SDG FTA002, consists of eleven (11) soil environmental samples and one (1) rinsate blank. Two (2) field duplicate pairs (OFF-S-TP-17-0809 / OFF-S-DUPL3 and OFF-A-SS1-0005 / OFF-A-DUPL6) were included within this SDG.

All samples were analyzed for Total Petroleum Hydrocarbon (TPH). The samples were collected by Brown and Root Environmental on July 7,9 and 11, 1997 and analyzed by Katahdin Analytical Services under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. All analyses were conducted using EPA method 418.1.

These data were evaluated based on the following parameters:

- Data Completeness
- Holding Times
- Calibration Verifications
- Laboratory Blank Analyses
- Field Blank Analyses
- Matrix Spike / Matrix Spike Duplicate Results
- Laboratory Control Sample Results
- Field Duplicate Results
- Analyte Quantitation
- Detection Limits

- - All quality control criteria were met for this parameter.

The attached Table 1 summarizes the validation recommendations which were based on the following information:

Matrix Spike / Matrix Spike Duplicate results:

The Matrix Spike / Matrix Spike Duplicate Percent Recovenes (%Rs) for TPH affecting the soil samples exhibited recoveries both above and below the 75-125% quality control limits. The positive results and nondetects reported for TPH in the affected samples were qualified as estimated, "J".

Executive Summary

Laboratory Performance: None.

Other Factors Affecting Data Quality: The MS/MSD %Rs for TPH affecting the soil matrix exhibited recoveries both above and below the 75-125% quality control limits.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994, "EPA Region I Functional Guidelines for Evaluating Inorganic Analyses", February 1989 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide " (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Brown and Root Environmental
Terri L. Solomon
Chemist

Brown and Root Environmental
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation.

NETC NEWPORT
SDG FTA002
TABLE 1 - RECOMMENDATION SUMMARY

TPH	J^1

If the field is left blank, the qualifier is A - Accept all data.

J^1 - Accept data but qualify positive results and nondetects affecting the soil samples as estimated, "J" and "UJ", respectively, as a result of MS/MSD %R.

CTO288 - NETC NEWPORT
SOIL DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER:	OFF-S-DUPL6	OFF-S-MW101-0608	OFF-S-MW102-0608	OFF-S-SS1-0005	OFF-S-SS2-0005
SAMPLE DATE:	07/11/97	07/09/97	07/07/97	07/11/97	07/11/97
LABORATORY ID	WN1818-6	WN1788-1	WN1762-5	WN1818-1	WN1818-2
QC_TYPE:	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS:	86 0 %	89 0 %	79 0 %	77 0 %	96 0 %
FIELD DUPLICATE OF:	OFF-A-SS1-0005				

	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS
TOTAL PETROLEUM HYDROCARBONS					
TOTAL PETROLEUM HYDROCARBONS	180 J MG/KG	1900 J MG/KG	8200 J MG/KG	250 UJ MG/KG	120 J MG/KG

CTO288 - NETC NEWPORT
SOIL DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER.	OFF-S-MW101-0608			OFF-S-MW102-0608			OFF-S-TP-16-1011			OFF-S-TP-17-0809			OFF-S-DUPL3		
SAMPLE DATE.	07/09/97			07/07/97			07/07/97			07/07/97			07/07/97		
LABORATORY ID	WN1788-1			WN1762-5			WN1762-2			WN1762-3			WN1762-4		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	89 0 %			79 0 %			65 0 %			86 0 %			88 0 %		
FIELD DUPLICATE OF.													OFF-S-TP-17-0809		
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
VOLATILES															
1,1,1-TRICHLOROETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
1,1,2,2-TETRACHLOROETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
1,1,2-TRICHLOROETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
1,1-DICHLOROETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
1,1-DICHLOROETHENE	1400	UJ	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
1,2-DICHLOROETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
1,2-DICHLOROPROPANE	1400	U	UG/KG	130	UJ	UG/KG	150	UJ	UG/KG	120	UJ	UG/KG	110	UJ	UG/KG
2-BUTANONE	1400	UJ	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
2-HEXANONE	1400	UJ	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
4-METHYL-2-PENTANONE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
ACETONE	1400	UJ	UG/KG	130	U	UG/KG	270	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
BENZENE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
BROMODICHLOROMETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
BROMOFORM	1400	U	UG/KG	130	UJ	UG/KG	150	UJ	UG/KG	120	UJ	UG/KG	110	UJ	UG/KG
BROMOMETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
CARBON DISULFIDE	1400	UJ	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
CARBON TETRACHLORIDE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
CHLOROBENZENE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
CHLOROETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
CHLOROFORM	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
CHLOROMETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
CIS-1,3-DICHLOROPROPENE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
DIBROMOCHLOROMETHANE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
ETHYLBENZENE	1400	U	UG/KG	630	J	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
METHYLENE CHLORIDE	1400	UJ	UG/KG	100	J	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
STYRENE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
TETRACHLOROETHENE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
TOLUENE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
TOTAL 1,2-DICHLOROETHENE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
TRANS-1,3-DICHLOROPROPENE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
TRICHLOROETHENE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
VINYL CHLORIDE	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG
XYLENES, TOTAL	1400	U	UG/KG	130	U	UG/KG	150	U	UG/KG	120	UJ	UG/KG	110	U	UG/KG

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SAMPLE NUMBER	OFF-S-DUPL6	OFF-S-MW101-0608	OFF-S-MW102-0608	OFF-S-SS1-0005	OFF-S-SS2-0005
SAMPLE DATE	07/11/97	07/09/97	07/07/97	07/11/97	07/11/97
LABORATORY ID	WN1818-6	WN1788-1	WN1762-5	WN1818-1	WN1818-2
QC_TYPE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS	86 0 %	89 0 %	79 0 %	77 0 %	96 0 %
FIELD DUPLICATE OF.	OFF-A-SS1-0005				

	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
SEMIVOLATILES															
1,2,4-TRICHLOROBENZENE	400	U	UG/KG	360	UJ	UG/KG	430	UJ	UG/KG	430	U	UG/KG	330	U	UG/KG
1,2-DICHLOROBENZENE	400	U	UG/KG	360	UJ	UG/KG	430	U	UG/KG	430	U	UG/KG	330	U	UG/KG
1,3-DICHLOROBENZENE	400	U	UG/KG	360	UJ	UG/KG	430	U	UG/KG	430	U	UG/KG	330	U	UG/KG
1,4-DICHLOROBENZENE	400	U	UG/KG	360	UJ	UG/KG	430	U	UG/KG	430	U	UG/KG	330	UJ	UG/KG
2,2'-OXYBIS(1-CHLOROPROPANE)	400	U	UG/KG	360	UJ	UG/KG	430	UJ	UG/KG	430	U	UG/KG	330	U	UG/KG
2,4,5-TRICHLOROPHENOL	1000	U	UG/KG	910	U	UG/KG	1100	UR	UG/KG	1100	U	UG/KG	830	U	UG/KG
2,4,6-TRICHLOROPHENOL	400	U	UG/KG	360	U	UG/KG	430	UR	UG/KG	430	U	UG/KG	330	U	UG/KG
2,4-DICHLOROPHENOL	400	U	UG/KG	360	U	UG/KG	430	UJ	UG/KG	430	U	UG/KG	330	U	UG/KG
2,4-DIMETHYLPHENOL	400	U	UG/KG	360	U	UG/KG	430	UJ	UG/KG	430	U	UG/KG	330	U	UG/KG
2,4-DINITROPHENOL	1000	U	UG/KG	910	U	UG/KG	1100	UR	UG/KG	1100	U	UG/KG	830	U	UG/KG
2,4-DINITROTOLUENE	400	U	UG/KG	360	UJ	UG/KG	430	UR	UG/KG	430	U	UG/KG	330	U	UG/KG
2,6-DINITROTOLUENE	400	U	UG/KG	360	UJ	UG/KG	430	UR	UG/KG	430	U	UG/KG	330	U	UG/KG
2-CHLORONAPHTHALENE	400	U	UG/KG	360	UJ	UG/KG	430	UR	UG/KG	430	U	UG/KG	330	U	UG/KG
2-CHLOROPHENOL	400	U	UG/KG	360	U	UG/KG	430	U	UG/KG	430	U	UG/KG	330	U	UG/KG
2-METHYLNAPHTHALENE	400	UJ	UG/KG	11000		UG/KG	4300	J	UG/KG	220	J	UG/KG	330	U	UG/KG
2-METHYLPHENOL	400	U	UG/KG	360	U	UG/KG	430	U	UG/KG	430	U	UG/KG	330	U	UG/KG
2-NITROANILINE	1000	U	UG/KG	910	UJ	UG/KG	1100	UR	UG/KG	1100	U	UG/KG	830	U	UG/KG
2-NITROPHENOL	400	U	UG/KG	360	U	UG/KG	430	UJ	UG/KG	430	U	UG/KG	330	U	UG/KG
3,3'-DICHLOROBENZIDINE	400	U	UG/KG	360	UJ	UG/KG	430	UJ	UG/KG	430	U	UG/KG	330	U	UG/KG
3-NITROANILINE	1000	U	UG/KG	910	UJ	UG/KG	1100	UR	UG/KG	1100	U	UG/KG	830	U	UG/KG
4,6-DINITRO-2-METHYLPHENOL	1000	U	UG/KG	910	UJ	UG/KG	1100	UR	UG/KG	1100	U	UG/KG	830	U	UG/KG
4-BROMOPHENYL PHENYL ETHER	400	U	UG/KG	360	UJ	UG/KG	430	UR	UG/KG	430	U	UG/KG	330	U	UG/KG
4-CHLORO-3-METHYLPHENOL	400	U	UG/KG	360	U	UG/KG	430	UJ	UG/KG	430	U	UG/KG	330	U	UG/KG
4-CHLOROANILINE	400	U	UG/KG	360	UJ	UG/KG	430	UJ	UG/KG	430	U	UG/KG	330	U	UG/KG
4-CHLOROPHENYL PHENYL ETHER	400	U	UG/KG	360	UJ	UG/KG	430	UR	UG/KG	430	U	UG/KG	330	U	UG/KG
4-METHYLPHENOL	400	U	UG/KG	360	U	UG/KG	430	U	UG/KG	430	U	UG/KG	330	U	UG/KG
4-NITROANILINE	1000	U	UG/KG	910	UJ	UG/KG	1100	UR	UG/KG	1100	U	UG/KG	830	U	UG/KG
4-NITROPHENOL	1000	U	UG/KG	910	U	UG/KG	1100	U	UG/KG	1100	U	UG/KG	830	U	UG/KG
ACENAPHTHENE	310	J	UG/KG	360	UJ	UG/KG	430	UR	UG/KG	370	J	UG/KG	330	U	UG/KG
ACENAPHTHYLENE	430		UG/KG	360	UJ	UG/KG	430	UR	UG/KG	690		UG/KG	330	U	UG/KG
ANTHRACENE	1000		UG/KG	890	J	UG/KG	4800		UG/KG	1300		UG/KG	330	U	UG/KG
BENZO(A)ANTHRACENE	2400		UG/KG	470		UG/KG	3400		UG/KG	3300	J	UG/KG	250	J	UG/KG
BENZO(A)PYRENE	2000		UG/KG	380		UG/KG	4000		UG/KG	2500		UG/KG	210	J	UG/KG

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SAMPLE NUMBER	OFF-S-DUPL6			OFF-S-MW101-0608			OFF-S-MW102-0608			OFF-S-SS1-0005			OFF-S-SS2-0005		
SAMPLE DATE	07/11/97			07/09/97			07/07/97			07/11/97			07/11/97		
LABORATORY ID	WN1818-6			WN1788-1			WN1762-5			WN1818-1			WN1818-2		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	86 0 %			89 0 %			79 0 %			77 0 %			96 0 %		
FIELD DUPLICATE OF	OFF-A-SS1-0005														
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
SEMIVOLATILES															
BENZO(B)FLUORANTHENE	2200		UG/KG	260	J	UG/KG	2700	J	UG/KG	2700		UG/KG	180	J	UG/KG
BENZO(G,H,I)PERYLENE	1000		UG/KG	180	J	UG/KG	1900	J	UG/KG	1500		UG/KG	110	J	UG/KG
BENZO(K)FLUORANTHENE	1000		UG/KG	310	J	UG/KG	2200	J	UG/KG	1900	J	UG/KG	190	J	UG/KG
BIS(2-CHLOROETHOXY)METHANE	400	U	UG/KG	360	UJ	UG/KG	430	UJ	UG/KG	430	U	UG/KG	330	U	UG/KG
BIS(2-CHLOROETHYL)ETHER	400	U	UG/KG	360	UJ	UG/KG	430	U	UG/KG	430	U	UG/KG	330	U	UG/KG
BIS(2-ETHYLHEXYL)PHTHALATE	17000	U	UG/KG	360	UJ	UG/KG	430	UJ	UG/KG	430	U	UG/KG	330	U	UG/KG
BUTYLBENZYL PHTHALATE	400	U	UG/KG	360	UJ	UG/KG	430	UJ	UG/KG	430	U	UG/KG	330	U	UG/KG
CARBAZOLE	230	J	UG/KG	360	UJ	UG/KG	430	UR	UG/KG	310	J	UG/KG	330	U	UG/KG
CHRYSENE	2200		UG/KG	430		UG/KG	3200	J	UG/KG	3100		UG/KG	220	J	UG/KG
DI-N-BUTYL PHTHALATE	400	U	UG/KG	360	UJ	UG/KG	430	UR	UG/KG	430	U	UG/KG	330	U	UG/KG
DI-N-OCTYL PHTHALATE	400	UJ	UG/KG	360	UJ	UG/KG	430	UJ	UG/KG	430	UJ	UG/KG	330	UJ	UG/KG
DIBENZO(A,H)ANTHRACENE	520		UG/KG	360	UJ	UG/KG	820	J	UG/KG	610		UG/KG	330	U	UG/KG
DIBENZOFURAN	320	J	UG/KG	830		UG/KG	430	UR	UG/KG	410	J	UG/KG	330	U	UG/KG
DIETHYL PHTHALATE	400	U	UG/KG	360	UJ	UG/KG	430	UR	UG/KG	430	U	UG/KG	330	U	UG/KG
DIMETHYL PHTHALATE	400	U	UG/KG	360	UJ	UG/KG	430	UR	UG/KG	430	U	UG/KG	330	U	UG/KG
FLUORANTHENE	7900		UG/KG	2500	J	UG/KG	16000		UG/KG	7000		UG/KG	510		UG/KG
FLUORENE	550		UG/KG	1200	J	UG/KG	430	UR	UG/KG	760		UG/KG	330	U	UG/KG
HEXACHLOROBENZENE	400	U	UG/KG	360	UJ	UG/KG	430	UR	UG/KG	430	U	UG/KG	330	U	UG/KG
HEXACHLOROBUTADIENE	400	U	UG/KG	360	UJ	UG/KG	430	UJ	UG/KG	430	U	UG/KG	330	U	UG/KG
HEXACHLOROCYCLOPENTADIENE	400	U	UG/KG	360	UJ	UG/KG	430	U	UG/KG	430	U	UG/KG	330	U	UG/KG
HEXACHLOROETHANE	400	U	UG/KG	360	UJ	UG/KG	430	U	UG/KG	430	U	UG/KG	330	U	UG/KG
INDENO(1,2,3-CD)PYRENE	1200		UG/KG	210	J	UG/KG	2300	J	UG/KG	1600		UG/KG	120	J	UG/KG
ISOPHORONE	400	U	UG/KG	360	UJ	UG/KG	430	UJ	UG/KG	430	U	UG/KG	330	U	UG/KG
N-NITROSO-DI-N-PROPYLAMINE	400	U	UG/KG	360	UJ	UG/KG	430	U	UG/KG	430	U	UG/KG	330	U	UG/KG
N-NITROSODIPHENYLAMINE	400	U	UG/KG	360	UJ	UG/KG	430	UR	UG/KG	430	U	UG/KG	330	U	UG/KG
NAPHTHALENE	400	U	UG/KG	3700	J	UG/KG	430	UJ	UG/KG	200	J	UG/KG	330	U	UG/KG
NITROBENZENE	400	U	UG/KG	360	UJ	UG/KG	430	UJ	UG/KG	430	U	UG/KG	330	U	UG/KG
PENTACHLOROPHENOL	1000	U	UG/KG	910	UJ	UG/KG	1100	UR	UG/KG	1100	U	UG/KG	830	U	UG/KG
PHENANTHRENE	4700		UG/KG	3800		UG/KG	12000		UG/KG	5700		UG/KG	350		UG/KG
PHENOL	400	U	UG/KG	360	U	UG/KG	430	U	UG/KG	430	U	UG/KG	330	U	UG/KG
PYRENE	5500	J	UG/KG	970	J	UG/KG	5300		UG/KG	9800	J	UG/KG	630		UG/KG

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	OFF-S-SS3-0000		OFF-S-SS4-0005		OFF-S-SS5-0005		OFF-S-TP-16-1011		OFF-S-TP-17-0809	
SAMPLE NUMBER	07/11/97		07/11/97		07/11/97		07/07/97		07/07/97	
SAMPLE DATE	WN1818-3		WN1818-4		WN1818-5		WN1762-2		WN1762-3	
LABORATORY ID	NORMAL		NORMAL		NORMAL		NORMAL		NORMAL	
QC_TYPE	99 0 %		98 0 %		96 0 %		65 0 %		86 0 %	
% SOLIDS										
FIELD DUPLICATE OF:										
	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS
SEMIVOLATILES										
1,2,4-TRICHLOROBENZENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
1,2-DICHLOROBENZENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
1,3-DICHLOROBENZENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
1,4-DICHLOROBENZENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
2,2'-OXYBIS(1-CHLOROPROPANE)	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	UJ UG/KG
2,4,5-TRICHLOROPHENOL	830	U UG/KG	830	U UG/KG	830	U UG/KG	12000	U UG/KG	1000	U UG/KG
2,4,6-TRICHLOROPHENOL	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
2,4-DICHLOROPHENOL	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
2,4-DIMETHYLPHENOL	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
2,4-DINITROPHENOL	830	U UG/KG	830	U UG/KG	830	U UG/KG	12000	U UG/KG	1000	U UG/KG
2,4-DINITROTOLUENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
2,6-DINITROTOLUENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
2-CHLORONAPHTHALENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
2-CHLOROPHENOL	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
2-METHYLNAPHTHALENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	690	UG/KG
2-METHYLPHENOL	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
2-NITROANILINE	830	U UG/KG	830	U UG/KG	830	U UG/KG	12000	U UG/KG	1000	U UG/KG
2-NITROPHENOL	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
3,3'-DICHLOROBENZIDINE	330	UJ UG/KG	330	U UG/KG	330	U UG/KG	5000	UJ UG/KG	400	U UG/KG
3-NITROANILINE	830	U UG/KG	830	U UG/KG	830	U UG/KG	12000	U UG/KG	1000	U UG/KG
4,6-DINITRO-2-METHYLPHENOL	830	UJ UG/KG	830	U UG/KG	830	U UG/KG	12000	U UG/KG	1000	U UG/KG
4-BROMOPHENYL PHENYL ETHER	330	UJ UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
4-CHLORO-3-METHYLPHENOL	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
4-CHLOROANILINE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
4-CHLOROPHENYL PHENYL ETHER	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
4-METHYLPHENOL	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
4-NITROANILINE	830	U UG/KG	830	U UG/KG	830	U UG/KG	12000	U UG/KG	1000	U UG/KG
4-NITROPHENOL	830	U UG/KG	830	U UG/KG	830	U UG/KG	12000	U UG/KG	1000	U UG/KG
ACENAPHTHENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
ACENAPHTHYLENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
ANTHRACENE	330	UJ UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
BENZ (A)ANTHRACENE	220	J UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
BENZO(A)PYRENE	590	J UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG

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SAMPLE NUMBER.	OFF-S-SS3-0000		OFF-S-SS4-0005		OFF-S-SS5-0005		OFF-S-TP-16-1011		OFF-S-TP-17-0809	
SAMPLE DATE:	07/11/97		07/11/97		07/11/97		07/07/97		07/07/97	
LABORATORY ID	WN1818-3		WN1818-4		WN1818-5		WN1762-2		WN1762-3	
QC_TYPE	NORMAL		NORMAL		NORMAL		NORMAL		NORMAL	
% SOLIDS	99 0 %		98 0 %		96 0 %		65 0 %		86 0 %	
FIELD DUPLICATE OF										
	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS
SEMIVOLATILES										
BENZO(B)FLUORANTHENE	380	J UG/KG	330	U UG/KG	330	U UG/KG	300	J UG/KG	400	U UG/KG
BENZO(G,H,I)PERYLENE	460	J UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
BENZO(K)FLUORANTHENE	220	J UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
BIS(2-CHLOROETHOXY)METHANE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
BIS(2-CHLOROETHYL)ETHER	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
BIS(2-ETHYLHEXYL)PHTHALATE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
BUTYLBENZYL PHTHALATE	330	UJ UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
CARBAZOLE	330	UJ UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
CHRYSENE	450	J UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
DI-N-BUTYL PHTHALATE	330	UJ UG/KG	330	UJ UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
DI-N-OCTYL PHTHALATE	330	UR UG/KG	330	U UG/KG	330	U UG/KG	5000	UJ UG/KG	400	UJ UG/KG
DIBENZO(A,H)ANTHRACENE	330	UR UG/KG	330	U UG/KG	330	U UG/KG	5000	UJ UG/KG	400	U UG/KG
DIBENZOFURAN	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
DIETHYL PHTHALATE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
DIMETHYL PHTHALATE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
FLUORANTHENE	390	J UG/KG	330	U UG/KG	200	J UG/KG	910	J UG/KG	400	U UG/KG
FLUORENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
HEXACHLOROBENZENE	330	UJ UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
HEXACHLOROBUTADIENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
HEXACHLOROCYCLOPENTADIENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	UJ UG/KG	400	U UG/KG
HEXACHLOROETHANE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
INDENO(1,2,3-CD)PYRENE	200	J UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
ISOPHORONE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
N-NITROSO-DI-N-PROPYLAMINE	330	UJ UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
N-NITROSODIPHENYLAMINE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
NAPHTHALENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
NITROBENZENE	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
PENTACHLOROPHENOL	830	UJ UG/KG	830	U UG/KG	830	U UG/KG	12000	U UG/KG	1000	U UG/KG
PHENANTHRENE	330	UJ UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	240	J UG/KG
PHENOL	330	U UG/KG	330	U UG/KG	330	U UG/KG	5000	U UG/KG	400	U UG/KG
PYRENE	1800	J UG/KG	330	U UG/KG	240	J UG/KG	1300	J UG/KG	400	U UG/KG

NETC NEWPORT CTO 288
SOIL DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER.	OFF-S-DUPL3			
SAMPLE DATE:	07/07/97	/ /	/ /	/ /	/ /
LABORATORY ID	WN1762-4			
QC_TYPE	NORMAL			
% SOLIDS	88 0 %	100 0 %	100 0 %	100 0 %	100 0 %
FIELD DUPLICATE OF.	OFF-S-TP-17-0809			

	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS
SEMIVOLATILES					
1,2,4-TRICHLOROBENZENE	360 U UG/KG				
1,2-DICHLOROBENZENE	360 U UG/KG				
1,3-DICHLOROBENZENE	360 U UG/KG				
1,4-DICHLOROBENZENE	360 U UG/KG				
2,2'-OXYBIS(1-CHLOROPROPANE)	360 UJ UG/KG				
2,4,5-TRICHLOROPHENOL	910 U UG/KG				
2,4,6-TRICHLOROPHENOL	360 U UG/KG				
2,4-DICHLOROPHENOL	360 U UG/KG				
2,4-DIMETHYLPHENOL	360 U UG/KG				
2,4-DINITROPHENOL	910 U UG/KG				
2,4-DINITROTOLUENE	360 U UG/KG				
2,6-DINITROTOLUENE	360 U UG/KG				
2-CHLORONAPHTHALENE	360 U UG/KG				
2-CHLOROPHENOL	360 U UG/KG				
2-METHYLNAPHTHALENE	650 UG/KG				
2-METHYLPHENOL	360 U UG/KG				
2-NITROANILINE	910 U UG/KG				
2-NITROPHENOL	360 U UG/KG				
3,3'-DICHLOROBENZIDINE	360 U UG/KG				
3-NITROANILINE	910 U UG/KG				
4,6-DINITRO-2-METHYLPHENOL	910 U UG/KG				
4-BROMOPHENYL PHENYL ETHER	360 U UG/KG				
4-CHLORO-3-METHYLPHENOL	360 U UG/KG				
4-CHLOROANILINE	360 U UG/KG				
4-CHLOROPHENYL PHENYL ETHER	360 U UG/KG				
4-METHYLPHENOL	360 U UG/KG				
4-NITROANILINE	910 U UG/KG				
4-NITROPHENOL	910 U UG/KG				
ACENAPHTHENE	360 U UG/KG				
ACENAPHTHYLENE	360 U UG/KG				
ANTHRACENE	360 U UG/KG				
BENZO(A)ANTHRACENE	360 U UG/KG				
BENZO(A)PYRENE	360 U UG/KG				

CTO288 - NETC NEWPORT
WATER DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER	OFF-A-TP-17-0809-RB			/ /		/ /		/ /		/ /
SAMPLE DATE	07/07/97									
LABORATORY ID	WN1762-6									
QC_TYPE	RINSE BLANK									
% SOLIDS	0 0 %			100 0 %		100 0 %		100 0 %		100 0 %
FIELD DUPLICATE OF										
	RESULT	QUAL	UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT	QUAL UNITS	RESULT QUAL UNITS
INORGANICS										
ALUMINUM	79 0	U	UG/L							
ANTIMONY	2 1	U	UG/L							
ARSENIC	1 8	U	UG/L							
BARIUM	0 22	U	UG/L							
BERYLLIUM	0 14	U	UG/L							
CADMIUM	0 19	U	UG/L							
CALCIUM	7 2	U	UG/L							
CHROMIUM	0 53	U	UG/L							
COBALT	0 51	U	UG/L							
COPPER	0 74	U	UG/L							
IRON	13 9	U	UG/L							
LEAD	1 4	U	UG/L							
MAGNESIUM	7 6	U	UG/L							
MANGANESE	0 24	U	UG/L							
MERCURY	0 01	UJ	UG/L							
NICKEL	0 74	U	UG/L							
POTASSIUM	346	U	UG/L							
SELENIUM	2 9	U	UG/L							
SILVER	0 82	U	UG/L							
SODIUM	64 4	U	UG/L							
THALLIUM	3 9	UJ	UG/L							
VANADIUM	0 57	U	UG/L							
ZINC	1 8	U	UG/L							

CTO288 - NETC NEWPORT
SOIL DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER	OFF-S-SS3-0000	OFF-S-SS4-0005	OFF-S-SS5-0005	OFF-S-TP-16-1011	OFF-S-TP-17-0809
SAMPLE DATE	07/11/97	07/11/97	07/11/97	07/07/97	07/07/97
LABORATORY ID	WN1818-3	WN1818-4	WN1818-5	WN1762-2	WN1762-3
QC_TYPE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS	99 0 %	98 0 %	96 0 %	65 0 %	86 0 %
FIELD DUPLICATE OF					

	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS	RESULT QUAL UNITS
TOTAL PETROLEUM HYDROCARBONS					
TOTAL PETROLEUM HYDROCARBONS	4400 J MG/KG	89 J MG/KG	180 J MG/KG	6400 J MG/KG	200 J MG/KG

CTO288 - NETC NEWPORT
SOIL DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER	OFF-S-DUPL3				
SAMPLE DATE	07/07/97	/ /	/ /	/ /	/ /
LABORATORY ID	WN1762-4				
QC_TYPE	NORMAL				
% SOLIDS	88 0 %	100 0 %	100 0 %	100 0 %	100 0 %
FIELD DUPLICATE OF:	OFF-S-TP-17-0809				
	RESULT QUAL UNITS	**RESULT QUAL UNITS**	**RESULT QUAL UNITS**	**RESULT QUAL UNITS**	**RESULT QUAL UNITS**
TOTAL PETROLEUM HYDROCARBONS					
TOTAL PETROLEUM HYDROCARBONS	190 J MG/KG				

CTO288 - NETC NEWPORT
WATER DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER	OFF-A-TP-17-0809-RB				
SAMPLE DATE	07/07/97	/ /	/ /	/ /	/ /
LABORATORY ID	WN1762-6				
QC_TYPE	RINSE BLANK				
% SOLIDS	0 0 %	100 0 %	100 0 %	100 0 %	100 0 %
FIELD DUPLICATE OF					
	RESULT QUAL UNITS	**RESULT QUAL UNITS**	**RESULT QUAL UNITS**	**RESULT QUAL UNITS**	**RESULT QUAL UNITS**
TOTAL PETROLEUM HYDROCARBONS					
TOTAL PETROLEUM HYDROCARBONS	11 U MG/L				

FTA002

TAL METALS

7577-5.9

Brown & Root Environmental

INTERNAL CORRESPONDENCE

C-49-09-7-008

TO: **D. CONAN** **DATE:** **SEPTEMBER 15, 1997**

FROM: **TERRI L. SOLOMON** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION - TAL METALS**
CTO 288 - NETC NEWPORT, NEWPORT, RHODE ISLAND
SDG - FTA002

SAMPLES: 5/Soils/

OFF-S-DUPL3 OFF-S-MW101-0608 OFF-S-MW102-0608
OFF-S-TP-16-1011 OFF-S-TP-17-0809

1/Aqueous/

OFF-A-TP-17-0809-RB5

Overview

The sample set for CTO 288, NETC Newport, SDG FTA002, consists of five (5) soil environmental samples and one (1) rinsate blank. One (1) field duplicate pair (OFF-S-TP-17-0809 / OFF-S-DUPL3) was included within this SDG.

All samples were analyzed for Target Analyte List (TAL) metals. The samples were collected by Brown and Root Environmental on July 7 and 9, 1997 and analyzed by Katahdin Analytical Services under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. All analyses were conducted using Contract Laboratory (CLP) Statement of Work (SOW) ILM04.0 analytical and reporting protocols. All analyses, with the exception of mercury, were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using cold vapor AA.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
• Calibration Verifications
• Laboratory Blank Analyses
* • Field Blank Analyses
• Interference Check Sample (ICS) Results
• Matrix Spike Results
* • Laboratory Duplicate Results
* • Field Duplicate Results
* • Laboratory Control Sample Results
* • ICP Serial Dilution Results
* • Analyte Quantitation
* • Detection Limits

* - All quality control criteria were met for this parameter.

The attached Table 1 summarizes the validation recommendations which were based on the following information:

Calibration Verifications

The Contract Required Detection Limit (CRDL) Percent Recoveries (%Rs) for calcium and sodium were > 120% quality control limit. The positive results < 3X CRDL reported for the aforementioned analytes were qualified as estimated, "J".

The CRDL %Rs for thallium and mercury were < 80% quality control limit. The nondetected results reported for the aforementioned analytes were qualified as estimated, "UJ".

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method / preparation blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level (aqueous)	Action Level (soil)
aluminum	118.36 ug/L	591.8 ug/L	87.3 mg/kg
antimony	3.24 ug/L	NA	2.39 mg/kg
arsenic	1.97 ug/L	NA	1.45 mg/kg
barium	1.51 ug/L	7.55 ug/L	1.11 mg/kg
beryllium	5.62 ug/L	NA	4.14 mg/kg
cadmium	3.35 ug/L	NA	2.47 mg/kg
calcium	124.54 ug/L	NA	91.8 mg/kg
chromium	5.68 ug/L	NA	4.19 mg/kg
cobalt	4.21 ug/L	NA	3.10 mg/kg
copper[1]	0.500 mg/kg	NA	2.5 mg/kg
iron	44.64 ug/L	223.2 ug/L	32.9 mg/kg
lead[1]	0.332 mg/kg	NA	1.66 mg/kg
magnesium	117.88 ug/L	589.4 ug/L	86.93 mg/kg
manganese	1.53 ug/L	7.65 ug/L	1.13 mg/kg
mercury	0.08 ug/L	NA	0.20 mg/kg
nickel	11.26 ug/L	56.3 ug/L	8.30 mg/kg
potassium	467.79 ug/L	NA	345 mg/kg
silver	3.19 ug/L	NA	2.35 mg/kg
sodium	178.68 ug/L	893.4 ug/L	131.8 mg/kg
thallium	5.17 ug/L	NA	3.81 mg/kg
vanadium	4.46 ug/L	NA	3.29 mg/kg
zinc	6.29 ug/L	31.45 ug/L	4.64 mg/kg

Samples affected: All

[1] Maximum concentration present in a soil preparation blank.

An action level of 5X the maximum concentration has been used to evaluate the sample data for blank contamination. Sample aliquot, percent solids and dilution factors were taken into consideration when evaluating for blank contamination. Positive results less than the action level for aluminum, barium, beryllium, cadmium, iron, magnesium, manganese, nickel, potassium, silver, sodium and zinc have been qualified as nondetected "U". No actions were required for the remaining analytes as all results were either greater than the action levels or were nondetects.

Interference Check Sample Results

The interfering analyte iron was present in samples OFF-DUPL3 and OFF-S-TP-17-0809 at a concentration which was comparable to the level of iron in the Interference Check Sample (ICS) solution. Several analytes namely arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, manganese, nickel, selenium and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for beryllium and selenium in the affected samples. The nondetected results reported for selenium were qualified as estimated, "UJ". The positive results reported for beryllium received no validation flag as the result was qualified as blank contamination.

The interfering analyte iron was present in sample OFF-S-MW101-0608 at a concentration which was comparable to the level of iron in the Interference Check Sample (ICS) solution. Several analytes namely arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, manganese, nickel, selenium and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for beryllium and selenium in the affected sample. The positive result reported for selenium was qualified as estimated, "J". The positive result reported for beryllium received no validation flag as the result was qualified as blank contamination.

The interfering analyte iron was present in sample OFF-S-MW102-0608 at a concentration which was comparable to the level of iron in the Interference Check Sample (ICS) solution. Several analytes namely arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, manganese, nickel, selenium and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for beryllium, cadmium, cobalt and selenium in the affected sample. The positive results reported for cobalt and selenium were qualified as estimated, "J". The positive results reported for beryllium and cadmium received no validation flags as the results were qualified as blank contamination.

The interfering analyte iron was present in sample OFF-S-TP-16-1011 at a concentration which was comparable to the level of iron in the Interference Check Sample (ICS) solution. Several analytes namely arsenic, barium, beryllium, cadmium, chromium, cobalt, lead, manganese, nickel, selenium and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for beryllium, cadmium, cobalt and selenium in the affected sample. The positive results reported for cadmium, cobalt and selenium was qualified as estimated, "J". The positive result reported for beryllium received no validation flag as the result was qualified as blank contamination.

Matrix Spike Results

The Matrix Spike Percent Recovery (%R) for antimony affecting the soil samples was < 30% quality control limit. The positive results reported for the aforementioned analyte were qualified as estimated, "J". The nondetected results reported for the aforementioned analyte were qualified as rejected, "UR".

The MS %Rs for arsenic, manganese and mercury affecting the soil samples were < 75% quality control limit. The positive results reported for the aforementioned analytes were qualified as estimated, "J".

Notes

The Continuing Calibration Verifications (CCVs) for cobalt and nickel analyzed on July 16, 1997 (CCVs #4 and #5) were below the 90% quality control limit. However, no validation actions were warranted as no environmental samples were affected by this noncompliance.

The CCVs for all analytes analyzed on July 25, 1997 (CCV #13) had 0% recoveries. It was noted in the case narrative that the autosampler cup was empty during the final CCV analysis. No samples within this SDG were affected. Therefore, no validation actions were required.

The CRDL %Rs for aluminum, cadmium, iron, lead, magnesium and zinc were outside the 80-120% quality control limits. However, no validation actions were warranted as the sample results were either > 3X CRDL, were qualified as blank contamination or were nondetects.

Executive Summary

Laboratory Performance: The CRDL %Rs for several analytes were outside the 80-120% quality control limits. Several analytes were present in the laboratory method / preparation blanks.

Other Factors Affecting Data Quality: The interfering analyte iron was present in several analytes. The MS %Rs for antimony, arsenic, manganese and mercury were outside the 75-125% quality control limits.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994, "EPA Region I Functional Guidelines for Evaluating Inorganic Analyses", February 1989 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide " (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Brown and Root Environmental
Tem L. Solomon
Chemist

Brown and Root Environmental
Joseph A Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation.

NETC NEWPORT
SDG FTA002
TABLE 1 - RECOMMENDATION SUMMARY

aluminum	A[1]			magnesium	A[1]		
antimony		J[3]	R[1]	manganese	A[1]	J[4]	
arsenic		J[4]		mercury		J[1,4]	
barium	A[1]			nickel	A[1]		
beryllium	A[1]			potassium	A[1]		
cadmium	A[1]	J[2]		selenium		J[2]	
calcium		J[1]		silver	A[1]		
chromium				sodium	A[1]	J[1]	
cobalt		J[2]		thallium		J[1]	
copper				vanadium			
iron	A[1]			zinc	A[1]		
lead							

If the field is left blank, the qualifier is A - Accept all data.

A[1] - Accept data but qualify data as nondetected, "U", as a result of laboratory blank contamination.

J[1] - Accept data but qualify positive results and nondetects as estimated, "J" and "UJ", respectively, as a result of CRDL %R.

J[2] - Accept data but qualify positive results and nondetects as estimated, "J" and "UJ", respectively, as a result of ICP Interference.

J[3] - Accept data but qualify positive results affecting the soil samples as estimated, "J" as a result of low MS %R.

J[4] - Accept data but qualify positive results affecting the soil samples as estimated, "J", as a result of high MS %R.

R[1] - Accept data but qualify nondetected results affecting soil samples as rejected, "UR", as a result of extremely low MS %R.

NETC NEWPORT CTO 288
WATER DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER.	OFF-A-TB5	OFF-A-TP-17-0809-RB5	/ /	/ /	/ /
SAMPLE DATE	07/07/97	07/07/97			
LABORATORY ID	WN1762-1	WN1762-6			
QC_TYPE	TRIP BLANK	NORMAL			
% SOLIDS	0 0 %	0 0 %	100 0 %	100 0 %	100 0 %
FIELD DUPLICATE OF					

	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
VOLATILES															
1,1,1-TRICHLOROETHANE	10	U	UG/L	10	U	UG/L									
1,1,2,2-TETRACHLOROETHANE	10	U	UG/L	10	U	UG/L									
1,1,2-TRICHLOROETHANE	10	U	UG/L	10	U	UG/L									
1,1-DICHLOROETHANE	10	U	UG/L	10	U	UG/L									
1,1-DICHLOROETHENE	10	U	UG/L	10	U	UG/L									
1,2-DICHLOROETHANE	10	U	UG/L	10	U	UG/L									
1,2-DICHLOROPROPANE	10	U	UG/L	10	U	UG/L									
2-BUTANONE	10	UJ	UG/L	10	UJ	UG/L									
2-HEXANONE	10	UJ	UG/L	10	UJ	UG/L									
4-METHYL-2-PENTANONE	10	U	UG/L	10	U	UG/L									
ACETONE	10	UJ	UG/L	20		UG/L									
BENZENE	10	U	UG/L	10	U	UG/L									
BROMODICHLOROMETHANE	10	U	UG/L	10	U	UG/L									
BROMOFORM	10	U	UG/L	10	U	UG/L									
BROMOMETHANE	10	U	UG/L	10	U	UG/L									
CARBON DISULFIDE	10	U	UG/L	10	U	UG/L									
CARBON TETRACHLORIDE	10	U	UG/L	10	U	UG/L									
CHLOROBENZENE	10	U	UG/L	10	U	UG/L									
CHLOROETHANE	10	U	UG/L	10	U	UG/L									
CHLOROFORM	10	U	UG/L	10	U	UG/L									
CHLOROMETHANE	10	U	UG/L	10	U	UG/L									
CIS-1,3-DICHLOROPROPENE	10	U	UG/L	10	U	UG/L									
DIBROMOCHLOROMETHANE	10	U	UG/L	10	U	UG/L									
ETHYLBENZENE	10	U	UG/L	10	U	UG/L									
METHYLENE CHLORIDE	10	U	UG/L	10	U	UG/L									
STYRENE	10	U	UG/L	10	U	UG/L									
TETRACHLOROETHENE	10	U	UG/L	10	U	UG/L									
TOLUENE	10	U	UG/L	10	U	UG/L									
TOTAL 1,2-DICHLOROETHENE	10	U	UG/L	10	U	UG/L									
TRANS-1,3-DICHLOROPROPENE	10	U	UG/L	10	U	UG/L									
TRICHLOROETHENE	10	U	UG/L	10	U	UG/L									
VINYL CHLORIDE	10	U	UG/L	10	U	UG/L									
XYLENES, TOTAL	10	U	UG/L	10	U	UG/L									

CTO288 - NETC NEWPORT
SOIL DATA
KATAHDIN
SDG: FTA002

SAMPLE NUMBER	OFF-S-MW101-0608			OFF-S-MW102-0608			OFF-S-TP-16-1011			OFF-S-TP-17-0809			OFF-S-DUPL3		
SAMPLE DATE:	07/09/97			07/07/97			07/07/97			07/07/97			07/07/97		
LABORATORY ID	WN1788-1			WN1762-5			WN1762-2			WN1762-3			WN1762-4		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	89 3 %			78 9 %			65 2 %			86 3 %			88 5 %		
FIELD DUPLICATE OF													OFF-S-TP-17-0809		
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
INORGANICS															
ALUMINUM	15300		MG/KG	4570		MG/KG	7510		MG/KG	11200		MG/KG	11700		MG/KG
ANTIMONY	0 35	UR	MG/KG	12 0	J	MG/KG	4 0	J	MG/KG	0 36	UR	MG/KG	0 35	UR	MG/KG
ARSENIC	9 3	J	MG/KG	53 6	J	MG/KG	74 4	J	MG/KG	8 2	J	MG/KG	7 1	J	MG/KG
BARIUM	13 4		MG/KG	220		MG/KG	126		MG/KG	10 3		MG/KG	13 4		MG/KG
BERYLLIUM	0 24	U	MG/KG	0 15	U	MG/KG	0 24	J	MG/KG	0 31	U	MG/KG	0 32	U	MG/KG
CADMIUM	0 03	U	MG/KG	2 0	U	MG/KG	6 3	U	MG/KG	0 03	U	MG/KG	0 03	U	MG/KG
CALCIUM	764	J	MG/KG	28800		MG/KG	14400		MG/KG	1090	J	MG/KG	1020	J	MG/KG
CHROMIUM	14 8		MG/KG	44 3		MG/KG	61 9		MG/KG	13 2		MG/KG	14 5		MG/KG
COBALT	9 2		MG/KG	18 0	J	MG/KG	15 3	J	MG/KG	14 1		MG/KG	13 5		MG/KG
COPPER	10 4		MG/KG	2310		MG/KG	264		MG/KG	25 6		MG/KG	24 9		MG/KG
IRON	42000		MG/KG	204000		MG/KG	186000		MG/KG	31400		MG/KG	31100		MG/KG
LEAD	12 7		MG/KG	5400		MG/KG	3350		MG/KG	13 1		MG/KG	13 3		MG/KG
MAGNESIUM	4260		MG/KG	7770		MG/KG	3240		MG/KG	4280		MG/KG	4320		MG/KG
MANGANESE	144	J	MG/KG	562	J	MG/KG	1110	J	MG/KG	267	J	MG/KG	254	J	MG/KG
MERCURY	0 01	UJ	MG/KG	0 65	J	MG/KG	2 2	J	MG/KG	0 01	UJ	MG/KG	0 01	UJ	MG/KG
NICKEL	22 5		MG/KG	64 1		MG/KG	37 3		MG/KG	24 9		MG/KG	25 0		MG/KG
POTASSIUM	268	U	MG/KG	590		MG/KG	362	U	MG/KG	314	U	MG/KG	374	U	MG/KG
SELENIUM	0 50	J	MG/KG	1 3	J	MG/KG	1 2	J	MG/KG	0 50	UJ	MG/KG	0 48	UJ	MG/KG
SILVER	0 13	U	MG/KG	0 91	U	MG/KG	0 48	U	MG/KG	0 14	U	MG/KG	0 14	U	MG/KG
SODIUM	98 3	U	MG/KG	3240		MG/KG	1030	J	MG/KG	223	J	MG/KG	243	J	MG/KG
THALLIUM	0 64	UJ	MG/KG	0 73	UJ	MG/KG	0 89	UJ	MG/KG	0 67	UJ	MG/KG	0 65	UJ	MG/KG
VANADIUM	25 7		MG/KG	18 8		MG/KG	16 5		MG/KG	16 0		MG/KG	15 9		MG/KG
ZINC	45 0		MG/KG	3410		MG/KG	4240		MG/KG	65 9		MG/KG	64 7		MG/KG

FTA003

TCL VOAs, SVOAs, PEST/PCBs

3578-5.9

Brown & Root Environmental INTERNAL CORRESPONDENCE

C-49-09-7-079

TO: D. CONAN **DATE:** SEPTEMBER 19, 1997

FROM: SEAN NIXON **COPIES:** DV FILE

SUBJECT: ORGANIC DATA VALIDATION - TCL VOAS, SVOAS, PEST/PCBS
CTO 288 NETC NEWPORT, RHODE ISLAND
SDG - FTA003

SAMPLES: 29/Aqueous

OFF-A-DUPL4	OFF-A-DUPL5	OFF-A-DUPL7	OFF-A-FB2
OFF-A-MW101-01	OFF-A-MW101-RB9	OFF-A-MW102-01	OFF-A-MW10S-01
OFF-A-MW10S-RB7	OFF-A-MW11R-01	OFF-A-MW11S-01	OFF-A-MW1R-01
OFF-A-MW1R-RB6	OFF-A-MW2D-01	OFF-A-MW2S-01	OFF-A-MW3S-01
OFF-A-MW4S-01	OFF-A-MW4S-RB8	OFF-A-MW5S-01	OFF-MW6R-01
OFF-A-MW7S01	OFF-A-MW8R-01	OFF-A-MW9R-01	OFF-A-SW1-0506
OFF-A-SW2-0506	OFF-A-TB6	OFF-A-TB7	OFF-A-TB8
OFF-A-TB9			

The sample set for CTO 288 (NETC) Newport, Rhode Island SDG FTA003 consists of twenty-nine (29) aqueous environmental samples, including four (4) trip blanks designated -TB-, four (4) rinse blanks designated -RB, one (1) field blank designated -FB. The field duplicate pairs, samples OFF-A-MW9R-01/ OFF-A-DUPL4, OFF-A-MW4S-01/ OFF-A-DUPL5, and OFF-A-SW2-0506/ OFF-A-DUPL7 were included in this SDG All samples were to be analyzed for Target Compound List (TCL) volatile organics All samples, except the trip blanks, were to be analyzed for TCL semivolatile organics and Pesticide/ PCBs Samples OFF-A-MW5S-01 and OFF-A-MW8R-01 were specified for Matrix Spike/ Matrix Spike Duplicate (MS/ MSD) analysis by the field crew

The samples were collected by Brown and Root Environmental on July 8, 9, 10, and 11, 1997 and analyzed by Katahdin Analytical Services under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria All analyses were conducted using the Contract Laboratory Program (CLP) Statement of Work (SOW) OLM03 1

These data were evaluated based on the following parameters

- Data Completeness
* • Holding Times and Sample Handling
- Calibrations
- Calibration Verifications
- Laboratory Blank Analyses
- Surrogate Spike Recoveries
- Matrix Spike Results
* • Laboratory Control Samples
* • Internal Standard Performance
* • Compound Identification
* • Compound Quantitation

* • Field Duplicate Results
* • Detection Limits
* • Tentatively Identified Compounds (TICs)

* - All quality control criteria were met for this parameter

The attached Table 1 summarizes the validation recommendations which were based on the following information:

DATA COMPLETENESS

Semivolatiles

Sample OFF-A-MW101-RB9 was lost in a laboratory accident Consequently, a semivolatile analysis of the aforementioned sample could not be performed

CALIBRATIONS

The following table summarizes calibration noncompliances and corresponding validation actions The key associated with this table is presented after the table

Volatiles

Compound	IC 07-02-97	IC 07-17-97
Acetone	XX	XX
2-Butanone	XX	XX
4-Methyl-2-pentanone	XX	
Affected Samples	OFF-A-DUPL4, OFF-A-DUPL5, OFF-A-DUPL7 OFF-A-FB2, OFF-A-MW101-01, OFF-A-MW101-RB9 OFF-A-MW102-01, OFF-A-MW10S-01, OFF-A-MW10S-RB7 OFF-A-MW11R-01, OFF-A-MW11S-01, OFF-A-MW1R-01 OFF-A-MW1R-RB6 , OFF-A-MW2D-01, OFF-A-MW2S-01 OFF-A-MW3S-01, OFF-A-MW4S-01, OFF-A-MW4S-RB8 OFF-A-MW5S-01, OFF-A-MW7S01, OFF-A-MW8R-01 , OFF-A-MW9R-01, OFF-A-SW1-0506, OFF-A-SW2-0506 OFF-A-TB6, OFF-A-TB7, OFF-A-TB8 OFF-A-TB9	OFF-A-MW6R-01

Compound	CC 07-09-97	CC 07-11-97	CC 07-14-97
Methylene Chloride	XX	XX	
Acetone	XX	XX	XX
Carbon disulfide	XX	XX	XX
1,1-Dichloroethene		XX	
2-Butanone		XX	XX
cis 1,2-dichlorethene			XX
2-Hexanone		XX	XX
Affected Samples	OFF-A-MW1R-01	OFF-A-DUPL4	OFF-A-DUPL5
	OFF-A-MW1R-RB6	OFF-A-FB2	OFF-A-MW11R-01
	OFF-A-MW8R-01	OFF-A-MW105-01	OFF-A-MW3S-01
	OFF-A-TB6	OFF-A-MW105-RB7	OFF-A-MW4S-RB6
		OFF-A-MW2D-01	OFF-A-MW5S-01
		OFF-A-MW2S-01	OFF-A-MW7S-01
		OFF-A-MW9R-01	OFF-A-TB8
		OFF-A-TB7	OFF-A-TB9

Compound	CC 07-15-97
Methylene Chloride	XX
Acetone	
Carbon disulfide	
1,1-Dichloroethene	
2-Butanone	XX
cis 1,2-dichlorethene	
2-Hexanone	XX
Affected Samples	OFF-A-DUPL7, OFF-A-MW101-01
	OFF-A-MW101-RB9, OFF-A-MW102-01
	OFF-A-MW11S-01, OFF-A-MW4S-01
	OFF-A-SW1-0506, OFF-A-SW2-0506

Semivolatiles

Compound	CC 07-23-97	CC 07-24-97	CC 08-01-97
Pyrene	XX		
Di-n-octylphthalate	XX		XX
2,4-Dinitrophenol		XX	
4-nitrophenol		XX	
Diethylphthalate		XX	
4-nitroaniline		XX	
4,6-Dinitro-2-methylphenol		XX	
Fluoranthene		XX	
2,2'-oxybis(1-chloropropane)			XX
Affected Samples	OFF-A-DUPL4, OFF-A-FB2, OFF-A-MW105-01 OFF-A-MW105-RB7 OFF-A-MW1R-01 OFF-A-MW1R-RB6 OFF-A-MW2D-01 OFF-A-MW2S-01 OFF-S-MW3S-01 OFF-A-MW7S-01 OFF-A-MW8R-01 OFF-A-MW9R-01	OFF-A-MW11R-01 OFF-A-MW11S-01 OFF-A-MW4S-01 OFF-A-MW4S-RB8 OFF-A-MW5S-01	OFF-A-DUPL7 OFF-A-MW101-01 OFF-A-MW102-01 OFF-A-MW6R-01 OFF-A-SW1-0506 OFF-A-SW2-0506

Pesticide/PCBs

Compound	IC 07-29-97
Alpha-BHC	XY
Heptachlor	XY

Affected samples OFF-A-DUPL7, OFF-A-MW101-01, OFF-A-MW101-RB9, OFF-A-MW102-01, OFF-A-MW6R-01, OFF-A-SW1-0506, OFF-A-SW2-0506.

Calibration Actions

XX - Percent Relative Standard Deviation (%RSD) greater than 30% for volatiles and semivolatiles, or Percent Difference (%D) greater than 25%. Qualify positive and nondetected results as estimated, (J) and (UJ) respectively

XY - Percent Relative Standard Deviation (%RSD) greater than 20% for pesticide/PCBs Qualify nondetected results as estimated, (UJ)

A volatile initial calibration contained %RSDs greater than the 30% quality control limit for acetone, 2-butanone, and 2-hexanone. The positive and nondetected results for the aforementioned compounds in the affected samples were qualified as estimated, (J) and (UJ) respectively, except for those samples with positive results for acetone that were qualified for blank contamination, (U).

A volatile initial calibration contained %RSDs greater than the 30% quality control limit for acetone and 2-butanone This noncompliance affects positive and nondetected results The nondetected results for acetone and 2-butanone in the affected sample were qualified as estimated, (UJ).

An initial calibration curve for pesticide/PCBs contained %RSDs greater than 25% for alpha-BHC and Heptachlor Nondetected results for alpha-BHC and Heptachlor in the affected samples were qualified as estimated, (UJ).

A volatile continuing calibration contained %Ds greater than the 25% quality control limit for methylene chloride, acetone, and carbon disulfide This noncompliance affects positive and nondetected results. The nondetected results for the aforementioned compounds in the affected samples were qualified as estimated, (UJ)

A volatile continuing calibration contained %Ds greater than the 25% quality control limit for acetone, methylene chloride, carbon disulfide, 1,1-dichloroethene, and 2-butanone This noncompliance affects positive and nondetected results The nondetected results for the aforementioned compounds in the affected samples were qualified as estimated, (UJ) The positive results reported for acetone were qualified for blank contamination, (U)

A volatile continuing calibration contained %Ds greater than the 25% quality control limit for acetone, carbon disulfide, cis-1,2-dichloroethene, 2-butanone, and 2-hexanone This noncompliance affects positive and nondetected results The nondetected results for the aforementioned compounds in the affected samples were qualified as estimated, (UJ) The positive results reported for acetone were qualified for blank contamination, (U)

A volatile continuing calibration contained %Ds greater than the 25% for methylene chloride, 2-butanone, and 2-hexanone This noncompliance affects positive and nondetected results The nondetected results for the aforementioned compounds in the affected samples were qualified as estimated, (UJ)

A semivolatile continuing calibration contained %Ds greater than the 25% quality control limit for pyrene and di-n-octylphthalate This noncompliance affects positive and nondetected results The nondetected results for the aforementioned compounds in the affected samples were qualified as estimated, (UJ)

A semivolatile continuing calibration contained %Ds greater than the 25% quality control limit for 2,4-dinitrophenol, 4-nitrophenol, diethylphthalate, 4-nitroaniline, 4,6-dinitro-2-methylphenol, and fluoranthene This noncompliance affects positive and nondetected results The nondetected results reported for the aforementioned compounds in the affected samples were qualified as estimated, (UJ)

A semivolatile continuing calibration contained %Ds greater than the 25% quality control limit for 2,2'-oxybis(1-chloropropane) and di-n-octylphthalate This noncompliance affects positive and nondetected results The nondetected results reported for the aforementioned compounds in the affected samples were qualified as estimated, (UJ)

BLANKS

The following contaminants were detected in the laboratory method/ preparation blanks at the following maximum concentrations

Volatiles

Compound	Maximum Concentration	Aqueous Action Level (ug/L)
Acetone[1]	17 ug/L	170 ug/L
Acetone[2]	16 ug/L	160 ug/L
Methylene Chloride[1]	6 ug/L	60 ug/L
Methylene Chloride[2]	6 ug/L	60 ug/L

Samples Affected All

Semivolatiles

Compound	Maximum Concentration	Aqueous Action Level (ug/L)
Bis(2-ethylhexyl)phthalate[2]	39 ug/L	390 ug/L

1 - Maximum concentration detected in a trip blank

2 - Maximum concentration detected in a rinse blank, action level is not applicable to surface water samples

Blank Actions

Value < Contract Required Quantitation Limit (CRQL), report CRQL followed by a U
Value > CRQL and < Action level, report value followed by a U
Value > CRQL and > action level; report value unqualified

Sample aliquot dilution factors were considered prior to the application of the action levels Positive results reported for the compounds listed above were qualified according to the blank action table

ADDITIONAL COMMENTS

Positive results less than the CRQL were qualified as estimated, (J)

The pesticide/PCB Form Is did not contain the correct sample Ids. The data reviewer has corrected the appropriate forms

It should be noted that all of the samples associated with the volatile continuing calibration of 7-15-97 required resubmission on account of erroneous calculations for acetone

It should be noted that a semivolatile continuing calibration contained a %D for di-n-octylphthalate greater than the 25% quality control limit Since the affected sample was a dilution for another target compound, no validation was taken

It should be noted that the volatile MS/MSD analysis of sample OFF-A-MW8R-01 contained %Rs greater than the upper quality control limit for benzene. However, since a nondetected result was reported for sample OFF-A-MW8R-01, no validation action was taken

It should be noted that the semivolatile MS/MSD analysis of sample OFF-A-MW5S-01 contained %R's greater than the upper quality control limits for 4-nitrophenol, 2,4-dinitrophenol, and pentachlorophenol. Since the original analysis reported nondetected results for the aforementioned compounds, no validation action was taken for high MS/MSD %Rs

It should be noted that the semivolatile MS/MSD analysis of sample OFF-A-MW5S-01 contained a %RSD for the nonspiked compound bis(2-ethylhexyl)phthalate above the 50% quality control limit Since a nondetected result was reported in the original analysis, no validation action was taken

It should be noted that sample OFF-A-MW7S-01 reported a surrogate Percent Recovery (%R) for terphenyl-d14 above the 141% quality control limit Since terphenyl-d14 was the only noncompliant surrogate in the aforementioned sample, no validation action was taken

It should be noted that sample OFF-A-DUPL5 reported a surrogate Percent Recovery (%R) for 2-fluorobiphenyl below the 43% quality control limit. Since 2-fluorobiphenyl was the only noncompliant surrogate in the aforementioned sample, no validation action was taken

It should be noted that the pesticide/PCB analysis of sample OFF-A-DUPL7 reported a %R for decachlorobiphenyl that was below the 30% quality control limit Since a low %R for decachlorobiphenyl was reported on only one column, no validation action was taken

Executive Summary

Laboratory Performance: Sample OFF-A-MW101-RB9 was lost in a laboratory accident and was not analyzed for organic semivolatiles Blank contamination was noted for acetone, methylene chloride, and bis(2-ethylhexyl)phthalate The volatile initial calibrations contained %RSDs greater than the 30% quality control limit for acetone, 2-butanone, and 4-methyl-2-pentanone Several volatile and semivolatile compounds produced continuing calibration %Ds greater than the 25% quality control limit

Other Factors Affecting Data Quality: None

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Organic Review", February 1994, "EPA Region I Volatile/ Semivolatile Data Validation Functional Guidelines", December 1996 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide " (NFESC 2/96)

The text of this report has been formulated to address only those problem areas affecting data quality

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP) "

Sean T Nixon
Chemist/Data Validator
Brown and Root Environmental

Joseph A Samchuck
Data Validation Quality Assurance Officer
Brown and Root Environmental

Attachments:

1 Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Regional Worksheets
4 Appendix D - Support Documentation

NETC Newport
SDG FTA003
TABLE 1 - RECOMMENDATION SUMMARY

Sample	Volatile	Semivolatile	Pesticide/PCB
OFF-A-DUPL4	A[1, 3, 6]	A[9]	
OFF-A-DUPL5	A[3, 7]	A[10]	
OFF-A-DUPL7	A[1, 3, 8]	A[11, 13]	A[12]
OFF-A-FB2	A[3, 6]	A[9]	
OFF-A-MW101-01	A[1, 2, 3, 8]	A[11, 13]	A[12]
OFF-A-MW101-RB9	A[3, 8]		A[12]
OFF-A-MW102-01	A[1, 2, 3 8]	A[11, 13 14]	A[12]
OFF-A-MW10S-01	A[3, 6]	A[9, 14]	
OFF-A-MW10S-RB7	A[3, 6]	A[9]	
OFF-A-MW11R-01	A[1, 3 7]	A[10, 13]	
OFF-A-MW11S-01	A[1, 2, 3, 8]	A[10, 14]	
OFF-A-MW1R-01	A[1, 3, 5]	A[9, 14]	
OFF-A-MW1R-RB6	A[3, 5, 13]	A[9, 13]	
OFF-A-MW2D-01	A[1, 3, 6]	A[9, 14]	
OFF-A-MW2S-01	A[1, 3, 6]	A[9]	
OFF-A-MW3S-01	A[3, 7]	A[9]	
OFF-A-MW4S-01	A[1, 2, 3 8]	A[10]	
OFF-A-MW4S-RB8	A[3 7]	A[10]	
OFF-A-MW5S-01	A[1, 3, 7]	A[10]	
OFF-MW6R-01	A[1, 4]	A[11, 14]	A[12]
OFF-A-MW7S01	A[1, 3, 7]	A[9, 14]	
OFF-A-MW8R-01	A[1, 3, 5]	A[9, 14]	
OFF-A-MW9R-01	A[1, 3 6]	A[9, 14]	
OFF-A-SW1-0506	A[1, 2, 3, 8]	A[11]	A[12]
OFF-A-SW2-0506	A[1, 2 3 8]	A[11, 13]	A[12]
OFF-A-TB6	A[3 5]		
OFF-A-TB7	A[3 6 13]		
OFF-A-TB8	A[3, 7]		
OFF-A-TB9	A[3, 7]		

A[1] - Accept data, but qualify positive results for acetone as nondetected, (U), as a result of blank contamination

A[2] - Accept data, but qualify positive results for methylene chloride as nondetected, (U), as a result of blank contamination

A[3] - Accept data, but qualify positive and nondetected results for acetone, 2-butanone, and 2-hexanone as estimated, (J) and (UJ) respectively, as a result of initial calibration %RSDs greater than 30%.

A[4] - Accept data, but qualify nondetected results for acetone and 2-butanone as estimated, (UJ), as a result of initial calibration %RSDs greater than 30%

A^5 - Accept data, but qualify positive and nondetected results for methylene chloride, acetone, and carbon disulfide as estimated, (J) and (UJ) respectively, as a result of continuing calibration %Ds greater than 25%

A^6 - Accept data, but qualify positive and nondetected results for methylene chloride, acetone, carbon disulfide, 1,1-dichloroethene, and 2-butanone as estimated, (J) and (UJ) respectively, as a result of continuing calibration %Ds greater than 25%

A^7 - Accept data, but qualify positive and nondetected results for acetone, carbon disulfide, cis-1,2-dichloroethene, 2-butanone, and 2-hexanone as estimated, (J) and (UJ) respectively, as a result of continuing calibration %Ds greater than 25%

A^8 - Accept data, but qualify positive and nondetected results for acetone, 2-butanone, and 2-hexanone as estimated, (J) and (UJ) respectively, as a result of continuing calibration %Ds greater than 25%

A^9 - Accept data, but qualify positive and nondetected results for pyrene and di-n-octylphthalate as estimated, (J) and (UJ) respectively, as a result of continuing calibration %Ds greater than 25%

A^{10} - Accept data, but qualify positive and nondetected results for 2,4-dinitrophenol, 4-nitrophenol, diethylphthalate, 4-nitroaniline, 4,6-dinitro-2-methylphenol, and fluoranthene as estimated, (J) and (UJ) respectively, as a result of continuing calibration %Ds greater than 25%

A^{11} - Accept data, but qualify positive and nondetected results for 2,2'-oxybis(1-chloropropene) and di-n-octylphthalate as estimated, (J) and (UJ) respectively, as a result of continuing calibration %Ds greater than 25%

A^{12} - Accept data, but qualify nondetected results for Alpha-BHC and Heptachlor as estimated, (UJ), as a result of initial calibration % RSD greater than 20%

A^{13} - Accept data, but qualify positive results less than the CRQL as estimated, (J)

A^{14} - Accept data but qualify positive reults for bis(2-ethylhexyl)phthalate as nondetected, (U), as a result of blank contamination

TABLE 2 NETC NEWPORT FTA003

TENTATIVELY IDENTIFIED COMPOUNDS

Volatiles

Compound	OFF-A-DUPL4	OFF-A-DUPL5	OFF-A-DUPL7	OFF-A-FB2	OFF-A-MW101-01
Dimethyl Sulfide			X		
Isopropyl alcohol					X
C9H12 isomer					X
Propyl benzene					X
1,1'-(1-ethenyl-1,3-propan Benzene					X
C10H14 isomer					X
2,3-dihydro-1-methylindene					X
C10H14 isomer					X
1H-Indene, 2,3-dihydro-4-methyl					X

Compound	OFF-A-MW101-RB9	OFF-A-MW102-01	OFF-A-MW105-01	OFF-A-MW105-RB7
Naphthalene		X		
Unknown		X	X	
C9H12 isomer		X		
C120H12 isomer		X		
1-methylnaphthalene		X		
Benzenethanamine, N-[(pentafluorop				X

Compound	OFF-A-MW11R-01	OFF-A-MW11S-01	OFF-A-MW1R-01	OFF-A-MW1R-RB6
Isopropyl alcohol		X		
Unknown			X	

Compound	OFF-A-MW2D-01	OFF-A-MW2S-01	OFF-A-MW3S-01	OFF-A-MW4S-01
Isopropyl alcohol		X	X	
Unknown				

Compound	OFF-A-MW4S-RB8	OFF-A-MW5S-01	OFF-MW6R-01	OFF-A-MW7S01
Benzenethanamine, N-[(pentafluorop			X	
Isopropyl alcohol				X
Unknown				

Compound	OFF-A-MW8R-01	OFF-A-MW9R-01	OFF-A-SW1-0506	OFF-A-SW2-0506
Dimethyl Sulfide			X	

TENTATIVELY IDENTIFIED COMPOUNDS
Semivolatiles
NETC Newport FTA 003

Compound	OFF-A-DUPL4	OFF-A-DUPL5	OFF-A-DUPL7	OFF-A-FB2	OFF-A-MW101-01
Unknown	X	X	X	X	X
Hexadecanoic acid	X				
Phthalate isomer	X			X	
2-methyl-1,1,1-d-propanoic acid		X		X	
4 hyroxy-3-methyl-benzene acetic acid		X			
3-(4-methoxyphenyl)-2-propanoic acid		X			
Hexadecanoic acid		X			
C10H14 isomer			X		
C10H12 isomer			X		X
1,2,3,4-tetrahydro-naphthalene			X		
C11H16 isomer			X		
2,3-dihdro-benzo[b]thiophene			X		
C11H14 isomer			X		
1-methylnaphthalene			X		X
Ethyl naphthalene isomer			X		X
Dimethyl naphthalene isomer			X		X
C13H14 isomer			X		X
Trimethylnaphthalene isomer			X		X
Unknown phthalate			X		X
N-propyl-benzamide				X	
1,3,5-tribromo-2-methoxy-benzene				X	
Diethylbenzene isomer					X
4-(1,1-dimethyleth-benzenemethanol					X
C14H12					X
C13H12					X

Compound	OFF-A-MW102-01	OFF-A-MW105-01	OFF-A-MW105-RB7	OFF-A-MW11R-01
Unknown	X		X	X
C10H14 isomer	X			
C10H12 isomer	X			
Butanoic acid, 2-methyl-,methyl es	X			
1-methylnaphthalene	X			
Benzeneacetic acid,.alpha.-methyl-	X			
Ethylnaphthalene isomer	X			
Dimethylnaphthalene isomer	X			
C12H12 isomer	X			
Trimethylnaphthalene isomer	X			
Sulfur	X	X		
1-Phenanthrenecarboxylic acid 1,2,	X			
Ethanol,2-(2-ethoxyethoxy)		X	X	
Hexadecanoic acid		X	X	X
N-propyl benzamide			X	
2-propanol, 1,1'-oxybis				X
Ethane 1,1'-oxybis[2-ethoxy]				X

Compound	OFF-A-MW1R-01	OFF-A-MW1R-RB6	OFF-A-MW2D-01	OFF-A-MW2S-01
2-Propanol, 1,1'-oxybis-	X			
Ethane, 1,1'-oxybis[2-ethoxy-]	X			
Unknown	X	X		X
Hexadecanoic acid	X	X	X	X
N-propylbenzamide		X		
9-Octadecenamide, (Z)-		X		
Propanoic acid, 2-methyl-, 1-(1,1-d)				X
Sulfur				X
Alkene				X
Phthalate isomer				X

Compound	OFF-A-MW3S-01	OFF-A-MW4S-01	OFF-A-MW4S-RB8	OFF-A-MW5S-01
Hexadecanoic acid	X			
Sulfur	X			
5H-Benzocycloheptane, 6,7-dihydro		X		
2-Propenoic acid, 3-(4-methoxypheny		X		
N-propyl-benzamide			X	
Unknown			X	X
Propanoic acid, 2-methyl-1-(1,1-d				X
Phthalate isomer				X

Compound	OFF-MW6R-01	OFF-A-MW7S01	OFF-A-MW8R-01	OFF-A-MW9R-01
Unknown	X	X		X
Bromacil	X			
1-Adamantol		X		
1,6-Octadien-3-ol, 3,6-dimethyl-, p		X		
Hexadecanoic acid		X	X	X
Ethanol, 2-(2-ethoxyethoxy)-				X

Compound	OFF-A-MW11R-01	OFF-A-MW11S-01	OFF-A-SW1-0506	OFF-A-SW2-0506
Ethanol, 2-(2-ethoxyethoxy)-	X			
Unknown	X		X	X
2-furanmethanol, tetrahydro-, aceta	X			
Hexadecanoic acid	X			
Octadecanoic acid	X			
Phthalate isomer	X			
C10H14 isomer		X		
C11H16 isomer		X		
1H-Imidazol,4,5-dihydro-4-methyl-		X		
Ethylnaphtalene isomer		X		
Dimethylnaphthalene isomer		X		
Unknown PAH		X		
Trimethylnaphthalene isomer		X		
C13H12 isomer		X		
Methyl-9H-fluorene isomer		X		
4,4'-Dimethylbiphenyl		X		
Methyl-9H-fluorene isomer		X		
Hexadecanoic acid		X	X	X
Sulfur		X		
Bromacil				X

APPENDIX A
Qualified Analytical Results

NETC NEWPORT CTO 288
WATER DATA
KATAHDIN
SDG: FTA003

SAMPLE NUMBER	OFF-A-FB2	OFF-A-MW101-01	OFF-A-MW101-RB9	OFF-A-MW102-01	OFF-A-MW10S-01
SAMPLE DATE	07/09/97	07/11/97	07/11/97	07/11/97	07/09/97
LABORATORY ID	WN1787-8	WN1819-6	WN1819-5	WN1819-7	WN1787-3
QC_TYPE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %
FIELD DUPLICATE OF					

	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
VOLATILES															
1,1,1-TRICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1,2,2-TETRACHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1,2-TRICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1-DICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1-DICHLOROETHENE	10	UJ	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	UJ	UG/L
1,2-DICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,2-DICHLOROPROPANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-BUTANONE	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L
2-HEXANONE	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L
4-METHYL-2-PENTANONE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
ACETONE	10	UJ	UG/L	41	U	UG/L	16		UG/L	89	U	UG/L	10	UJ	UG/L
BENZENE	10	U	UG/L	8	J	UG/L	10	U	UG/L	33		UG/L	10	U	UG/L
BROMODICHLOROMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BROMOFORM	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BROMOMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CARBON DISULFIDE	10	UJ	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	UJ	UG/L
CARBON TETRACHLORIDE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROBENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROFORM	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CIS-1,3-DICHLOROPROPENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DIBROMOCHLOROMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
ETHYLBENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	38		UG/L	10	U	UG/L
METHYLENE CHLORIDE	10	UJ	UG/L	10	U	UG/L	10	UJ	UG/L	10	U	UG/L	10	UJ	UG/L
STYRENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TETRACHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TOLUENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TOTAL 1,2-DICHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TRANS-1,3-DICHLOROPROPENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TRICHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
VINYL CHLORIDE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
XYLENES, TOTAL	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L

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SAMPLE NUMBER	OFF-A-MW10S-RB7			OFF-A-MW11R-01			OFF-A-MW11S-01			OFF-A-MW1R-01			OFF-A-MW1R-RB6		
SAMPLE DATE	07/09/97			07/10/97			07/10/97			07/08/97			07/08/97		
LABORATORY ID	WN1787-4			WN1807-5			WN1807-4			WN1771-3			WN1771-4		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF															
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
VOLATILES															
1,1,1-TRICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1,2,2-TETRACHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1,2-TRICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1-DICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1-DICHLOROETHENE	10	UJ	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,2-DICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,2-DICHLOROPROPANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-BUTANONE	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L
2-HEXANONE	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L
4-METHYL-2-PENTANONE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
ACETONE	18		UG/L	10	U	UG/L	14	U	UG/L	13	U	UG/L	14		UG/L
BENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BROMODICHLOROMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BROMOFORM	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BROMOMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CARBON DISULFIDE	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L
CARBON TETRACHLORIDE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROBENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROFORM	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CIS-1,3-DICHLOROPROPENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DIBROMOCHLOROMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
ETHYLBENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
METHYLENE CHLORIDE	10	UJ	UG/L	10	U	UG/L	10	U	UG/L	10	UJ	UG/L	6	J	UG/L
STYRENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TETRACHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TOLUENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TOTAL 1,2-DICHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TRANS-1,3-DICHLOROPROPENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TRICHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
VINYL CHLORIDE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
XYLENES, TOTAL	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L

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SAMPLE NUMBER	OFF-A-MW2D-01			OFF-A-MW2S-01			OFF-A-MW3S-01			OFF-A-MW4S-01			OFF-A-DUPL5		
SAMPLE DATE	07/09/97			07/09/97			07/10/97			07/10/97			07/10/97		
LABORATORY ID	WN1787-6			WN1787-7			WN1807-3			WN1807-6			WN1807-9		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF													OFF-A-MW4S-01		
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
VOLATILES															
1,1,1-TRICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1,2,2-TETRACHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1,2-TRICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1-DICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1-DICHLOROETHENE	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,2-DICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,2-DICHLOROPROPANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-BUTANONE	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L
2-HEXANONE	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L
4-METHYL-2-PENTANONE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
ACETONE	10	U	UG/L	21	U	UG/L	10	UJ	UG/L	10	U	UG/L	10	UJ	UG/L
BENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BROMODICHLOROMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BROMOFORM	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BROMOMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CARBON DISULFIDE	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	UJ	UG/L
CARBON TETRACHLORIDE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROBENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROFORM	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CIS-1,3-DICHLOROPROPENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DIBROMOCHLOROMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
ETHYLBENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
METHYLENE CHLORIDE	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
STYRENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TETRACHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TOLUENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TOTAL 1,2-DICHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TRANS-1,3-DICHLOROPROPENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TRICHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
VINYL CHLORIDE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
XYLENES, TOTAL	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L

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SAMPLE NUMBER	OFF-A-MW4S-RB8			OFF-A-MW5S-01			OFF-A-MW6R-01			OFF-A-MW7S-01			OFF-A-MW8R-01		
SAMPLE DATE	07/10/97			07/10/97			07/11/97			07/10/97			07/08/97		
LABORATORY ID	WN1807-8			WN1807-7			WN1819-8			WN1807-2			WN1771-2		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF															
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
VOLATILES															
1,1,1-TRICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1,2,2-TETRACHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1,2-TRICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1-DICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1-DICHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,2-DICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,2-DICHLOROPROPANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-BUTANONE	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L
2-HEXANONE	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L
4-METHYL-2-PENTANONE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
ACETONE	16		UG/L	10	U	UG/L	10	U	UG/L	180	U	UG/L	11	U	UG/L
BENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BROMODICHLOROMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BROMOFORM	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BROMOMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CARBON DISULFIDE	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L
CARBON TETRACHLORIDE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROBENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROFORM	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CIS-1,3-DICHLOROPROPENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DIBROMOCHLOROMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
ETHYLBENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
METHYLENE CHLORIDE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	UJ	UG/L
STYRENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TETRACHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TOLUENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TOTAL 1,2-DICHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TRANS-1,3-DICHLOROPROPENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TRICHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
VINYL CHLORIDE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
XYLENES, TOTAL	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L

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SAMPLE NUMBER	OFF-A-MW9R-01	OFF-A-DUPL4	OFF-A-SW1-0506	OFF-A-SW2-0506	OFF-A-DUPL7
SAMPLE DATE	07/09/97	07/09/97	07/11/97	07/11/97	07/11/97
LABORATORY ID	WN1787-2	WN1787-5	WN1819-2	WN1819-3	WN1819-4
QC_TYPE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS	0 0 %	0 0 %	0 0 %	0 0 %	0 0 %
FIELD DUPLICATE OF		OFF-A-MW9R-01			OFF-A-SW2-0506

	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
VOLATILES															
1,1,1-TRICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1,2,2-TETRACHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1,2-TRICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1-DICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,1-DICHLOROETHENE	10	U	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,2-DICHLOROETHANE	10	UJ	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,2-DICHLOROPROPANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-BUTANONE	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L
2-HEXANONE	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L
4-METHYL-2-PENTANONE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
ACETONE	10	U	UG/L	10	U	UG/L	16	U	UG/L	10	U	UG/L	20	U	UG/L
BENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BROMODICHLOROMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BROMOFORM	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BROMOMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CARBON DISULFIDE	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CARBON TETRACHLORIDE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROBENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROFORM	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHLOROMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CIS-1,3-DICHLOROPROPENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DIBROMOCHLOROMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
ETHYLBENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
METHYLENE CHLORIDE	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L	10	UJ	UG/L
STYRENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TETRACHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TOLUENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TOTAL 1,2-DICHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TRANS-1,3-DICHLOROPROPENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
TRICHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
VINYL CHLORIDE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
XYLENES, TOTAL	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L

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SAMPLE NUMBER	OFF-A-TB6	OFF-A-TB7	OFF-A-TB8	OFF-A-TB9	
SAMPLE DATE:	07/08/97	07/09/97	07/10/97	07/11/97	/ /
LABORATORY ID	WN1771-1	WN1787-1	WN1807-1	WN1819-1	
QC_TYPE	NORMAL	NORMAL	NORMAL	NORMAL	
% SOLIDS	0 0 %	0 0 %	0 0 %	0 0 %	100 0 %
FIELD DUPLICATE OF					

	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
VOLATILES															
1,1,1-TRICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
1,1,2,2-TETRACHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
1,1,2-TRICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
1,1-DICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
1,1-DICHLOROETHENE	10	U	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L			
1,2-DICHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
1,2-DICHLOROPROPANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
2-BUTANONE	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L			
2-HEXANONE	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L			
4-METHYL-2-PENTANONE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
ACETONE	15		UG/L	17		UG/L	15		UG/L	15		UG/L			
BENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
BROMODICHLOROMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
BROMOFORM	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
BROMOMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
CARBON DISULFIDE	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L			
CARBON TETRACHLORIDE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
CHLOROBENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
CHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
CHLOROFORM	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
CHLOROMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
CIS-1,3-DICHLOROPROPENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
DIBROMOCHLOROMETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
ETHYLBENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
METHYLENE CHLORIDE	6	J	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L			
STYRENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
TETRACHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
TOLUENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
TOTAL 1,2-DICHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
TRANS-1,3-DICHLOROPROPENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
TRICHLOROETHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
VINYL CHLORIDE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			
XYLENES, TOTAL	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L			

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SAMPLE NUMBER	OFF-A-FB2			OFF-A-MW101-01			OFF-A-MW102-01			OFF-A-MW10S-01			OFF-A-MW10S-RB7		
SAMPLE DATE	07/09/97			07/11/97			07/11/97			07/09/97			07/09/97		
LABORATORY ID	WN1787-8			WN1819-6			WN1819-7			WN1787-3			WN1787-4		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF															
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
SEMIVOLATILES															
1,2,4-TRICHLOROBENZENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,2-DICHLOROBENZENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,3-DICHLOROBENZENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,4-DICHLOROBENZENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2,2'-OXYBIS(1-CHLOROPROPANE)	11	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L
2,4,5-TRICHLOROPHENOL	28	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
2,4,6-TRICHLOROPHENOL	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2,4-DICHLOROPHENOL	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2,4-DIMETHYLPHENOL	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2,4-DINITROPHENOL	28	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
2,4-DINITROTOLUENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2,6-DINITROTOLUENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-CHLORONAPHTHALENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-CHLOROPHENOL	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-METHYLNAPHTHALENE	11	U	UG/L	190		UG/L	3	J	UG/L	10	U	UG/L	10	U	UG/L
2-METHYLPHENOL	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-NITROANILINE	28	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
2-NITROPHENOL	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
3,3'-DICHLOROBENZIDINE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
3-NITROANILINE	28	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
4,6-DINITRO-2-METHYLPHENOL	28	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
4-BROMOPHENYL PHENYL ETHER	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
4-CHLORO-3-METHYLPHENOL	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
4-CHLOROANILINE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
4-CHLOROPHENYL PHENYL ETHER	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
4-METHYLPHENOL	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
4-NITROANILINE	28	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
4-NITROPHENOL	28	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
ACENAPHTHENE	11	U	UG/L	9	J	UG/L	3	J	UG/L	10	U	UG/L	10	U	UG/L
ACENAPHTHYLENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
ANTHRACENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BENZO(A)ANTHRACENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BENZO(A)PYRENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L

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SAMPLE NUMBER	OFF-A-FB2			OFF-A-MW101-01			OFF-A-MW102-01			OFF-A-MW10S-01			OFF-A-MW10S-RB7		
SAMPLE DATE	07/09/97			07/11/97			07/11/97			07/09/97			07/09/97		
LABORATORY ID	WN1787-8			WN1819-6			WN1819-7			WN1787-3			WN1787-4		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF.															
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
SEMIVOLATILES															
BENZO(B)FLUORANTHENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BENZO(G,H,I)PERYLENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BENZO(K)FLUORANTHENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BIS(2-CHLOROETHOXY)METHANE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BIS(2-CHLOROETHYL)ETHER	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BIS(2-ETHYLHEXYL)PHTHALATE	11	U	UG/L	10	U	UG/L	10	U	UG/L	19	U	UG/L	39		UG/L
BUTYLBENZYL PHTHALATE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CARBAZOLE	11	U	UG/L	2	J	UG/L	1	J	UG/L	10	U	UG/L	10	U	UG/L
CHRYSENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DI-N-BUTYL PHTHALATE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DI-N-OCTYL PHTHALATE	11	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L
DIBENZO(A,H)ANTHRACENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DIBENZOFURAN	11	U	UG/L	8	J	UG/L	2	J	UG/L	10	U	UG/L	10	U	UG/L
DIETHYL PHTHALATE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DIMETHYL PHTHALATE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
FLUORANTHENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
FLUORENE	11	U	UG/L	9	J	UG/L	3	J	UG/L	10	U	UG/L	10	U	UG/L
HEXACHLOROBENZENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
HEXACHLOROBUTADIENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
HEXACHLOROCYCLOPENTADIENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
HEXACHLOROETHANE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
INDENO(1,2,3-CD)PYRENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
ISOPHORONE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
N-NITROSO-DI-N-PROPYLAMINE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
N-NITROSODIPHENYLAMINE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
NAPHTHALENE	11	U	UG/L	150		UG/L	11		UG/L	10	U	UG/L	10	U	UG/L
NITROBENZENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
PENTACHLOROPHENOL	28	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
PHENANTHRENE	11	U	UG/L	7	J	UG/L	3	J	UG/L	10	U	UG/L	10	U	UG/L
PHENOL	11	U	UG/L	10	U	UG/L	2	J	UG/L	10	U	UG/L	10	U	UG/L
PYRENE	11	UJ	UG/L	10	U	UG/L	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L

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SAMPLE NUMBER	OFF-A-MW11R-01			OFF-A-MW11S-01			OFF-A-MW1R-01			OFF-A-MW1R-RB6			OFF-A-MW2D-01		
SAMPLE DATE	07/10/97			07/10/97			07/08/97			07/08/97			07/09/97		
LABORATORY ID	WN1807-5			WN1807-4			WN1771-3			WN1771-4			WN1787-6		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF.															
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
SEMIVOLATILES															
1,2,4-TRICHLOROBENZENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,2-DICHLOROBENZENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,3-DICHLOROBENZENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,4-DICHLOROBENZENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2,2'-OXYBIS(1-CHLOROPROPANE)	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2,4,5-TRICHLOROPHENOL	28	U	UG/L	28	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
2,4,6-TRICHLOROPHENOL	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2,4-DICHLOROPHENOL	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2,4-DIMETHYLPHENOL	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2,4-DINITROPHENOL	28	U	UG/L	28	UJ	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
2,4-DINITROTOLUENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2,6-DINITROTOLUENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-CHLORONAPHTHALENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-CHLOROPHENOL	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-METHYLNAPHTHALENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-METHYLPHENOL	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-NITROANILINE	28	U	UG/L	28	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
2-NITROPHENOL	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
3,3'-DICHLOROBENZIDINE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
3-NITROANILINE	28	U	UG/L	28	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
4,6-DINITRO-2-METHYLPHENOL	28	U	UG/L	28	UJ	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
4-BROMOPHENYL PHENYL ETHER	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
4-CHLORO-3-METHYLPHENOL	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
4-CHLOROANILINE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
4-CHLOROPHENYL PHENYL ETHER	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
4-METHYLPHENOL	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
4-NITROANILINE	28	U	UG/L	28	UJ	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
4-NITROPHENOL	28	U	UG/L	28	UJ	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
ACENAPHTHENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
ACENAPHTHYLENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
ANTHRACENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BENZO(A)ANTHRACENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BENZO(A)PYRENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L

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SAMPLE NUMBER	OFF-A-MW11R-01			OFF-A-MW11S-01			OFF-A-MW1R-01			OFF-A-MW1R-RB6			OFF-A-MW2D-01		
SAMPLE DATE	07/10/97			07/10/97			07/08/97			07/08/97			07/09/97		
LABORATORY ID	WN1807-5			WN1807-4			WN1771-3			WN1771-4			WN1787-6		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0.0 %			0.0 %			0.0 %			0.0 %			0.0 %		
FIELD DUPLICATE OF.															
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
SEMIVOLATILES															
BENZO(B)FLUORANTHENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BENZO(G,H,I)PERYLENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BENZO(K)FLUORANTHENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BIS(2-CHLOROETHOXY)METHANE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BIS(2-CHLOROETHYL)ETHER	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BIS(2-ETHYLHEXYL)PHTHALATE	11	U	UG/L	11	U	UG/L	34	U	UG/L	6	J	UG/L	10	U	UG/L
BUTYLBENZYL PHTHALATE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CARBAZOLE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHRYSENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DI-N-BUTYL PHTHALATE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DI-N-OCTYL PHTHALATE	11	U	UG/L	11	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L
DIBENZO(A,H)ANTHRACENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DIBENZOFURAN	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DIETHYL PHTHALATE	11	UJ	UG/L	11	UJ	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DIMETHYL PHTHALATE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
FLUORANTHENE	11	UJ	UG/L	11	UJ	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
FLUORENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
HEXACHLOROBENZENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
HEXACHLOROBUTADIENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
HEXACHLOROCYCLOPENTADIENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
HEXACHLOROETHANE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
INDENO(1,2,3-CD)PYRENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
ISOPHORONE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
N-NITROSO-DI-N-PROPYLAMINE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
N-NITROSODIPHENYLAMINE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
NAPHTHALENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
NITROBENZENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
PENTACHLOROPHENOL	28	U	UG/L	28	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
PHENANTHRENE	11	U	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
PHENOL	5	J	UG/L	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
PYRENE	11	U	UG/L	11	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L

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SAMPLE NUMBER	OFF-A-MW2S-01			OFF-A-MW3S-01			OFF-A-MW4S-01			OFF-A-DUPL5			OFF-A-MW4S-RB8		
SAMPLE DATE	07/09/97			07/10/97			07/10/97			07/10/97			07/10/97		
LABORATORY ID	WN1787-7			WN1807-3			WN1807-6			WN1807-9			WN1807-8		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF										OFF-A-MW4S-01					
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
SEMIVOLATILES															
1,2,4-TRICHLOROBENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
1,2-DICHLOROBENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
1,3-DICHLOROBENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
1,4-DICHLOROBENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
2,4,5-TRICHLOROPHENOL	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	30	U	UG/L
2,4,6-TRICHLOROPHENOL	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
2,4-DICHLOROPHENOL	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
2,4-DIMETHYLPHENOL	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
2,4-DINITROPHENOL	25	U	UG/L	25	U	UG/L	25	UJ	UG/L	25	UJ	UG/L	30	UJ	UG/L
2,4-DINITROTOLUENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
2,6-DINITROTOLUENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
2-CHLORONAPHTHALENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
2-CHLOROPHENOL	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
2-METHYLNAPHTHALENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
2-METHYLPHENOL	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
2-NITROANILINE	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	30	U	UG/L
2-NITROPHENOL	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
3,3'-DICHLOROBENZIDINE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
3-NITROANILINE	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	30	U	UG/L
4,6-DINITRO-2-METHYLPHENOL	25	U	UG/L	25	U	UG/L	25	UJ	UG/L	25	UJ	UG/L	30	UJ	UG/L
4-BROMOPHENYL PHENYL ETHER	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
4-CHLORO-3-METHYLPHENOL	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
4-CHLOROANILINE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
4-CHLOROPHENYL PHENYL ETHER	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
4-METHYLPHENOL	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
4-NITROANILINE	25	U	UG/L	25	U	UG/L	25	UJ	UG/L	25	UJ	UG/L	30	UJ	UG/L
4-NITROPHENOL	25	U	UG/L	25	U	UG/L	25	UJ	UG/L	25	UJ	UG/L	30	UJ	UG/L
ACENAPHTHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
ACENAPHTHYLENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
ANTHRACENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
BENZO(A)ANTHRACENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
BENZO(A)PYRENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L

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SAMPLE NUMBER	OFF-A-MW2S-01			OFF-A-MW3S-01			OFF-A-MW4S-01			OFF-A-DUPL5			OFF-A-MW4S-RB8		
SAMPLE DATE	07/09/97			07/10/97			07/10/97			07/10/97			07/10/97		
LABORATORY ID	WN1787-7			WN1807-3			WN1807-6			WN1807-9			WN1807-8		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	00%			00%			00%			00%			00%		
FIELD DUPLICATE OF										OFF-A-MW4S-01					
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
SEMIVOLATILES															
BENZO(B)FLUORANTHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
BENZO(G,H,I)PERYLENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
BENZO(K)FLUORANTHENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
BIS(2-CHLOROETHOXY)METHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
BIS(2-CHLOROETHYL)ETHER	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
BIS(2-ETHYLHEXYL)PHTHALATE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
BUTYLBENZYL PHTHALATE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
CARBAZOLE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
CHRYSENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
DI-N-BUTYL PHTHALATE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
DI-N-OCTYL PHTHALATE	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
DIBENZO(A,H)ANTHRACENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
DIBENZOFURAN	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
DIETHYL PHTHALATE	10	U	UG/L	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	12	UJ	UG/L
DIMETHYL PHTHALATE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
FLUORANTHENE	10	U	UG/L	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	12	UJ	UG/L
FLUORENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
HEXACHLOROBENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
HEXACHLOROBUTADIENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
HEXACHLOROCYCLOPENTADIENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
HEXACHLOROETHANE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
INDENO(1,2,3-CD)PYRENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
ISOPHORONE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
N-NITROSO-DI-N-PROPYLAMINE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
N-NITROSODIPHENYLAMINE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
NAPHTHALENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
NITROBENZENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
PENTACHLOROPHENOL	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	30	U	UG/L
PHENANTHRENE	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
PHENOL	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L
PYRENE	10	UJ	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L	12	U	UG/L

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SAMPLE NUMBER.	OFF-A-MW5S-01			OFF-A-MW6R-01			OFF-A-MW7S-01			OFF-A-MW8R-01			OFF-A-MW9R-01		
SAMPLE DATE	07/10/97			07/11/97			07/10/97			07/08/97			07/09/97		
LABORATORY ID	WN1807-7			WN1819-8			WN1807-2			WN1771-2			WN1787-2		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF															
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
SEMIVOLATILES															
1,2,4-TRICHLOROBENZENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,2-DICHLOROBENZENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,3-DICHLOROBENZENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
1,4-DICHLOROBENZENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2,2'-OXYBIS(1-CHLOROPROPANE)	11	U	UG/L	10	UJ	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2,4,5-TRICHLOROPHENOL	28	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
2,4,6-TRICHLOROPHENOL	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2,4-DICHLOROPHENOL	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2,4-DIMETHYLPHENOL	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2,4-DINITROPHENOL	28	UJ	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
2,4-DINITROTOLUENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2,6-DINITROTOLUENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-CHLORONAPHTHALENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-CHLOROPHENOL	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-METHYLNAPHTHALENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-METHYLPHENOL	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
2-NITROANILINE	28	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
2-NITROPHENOL	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
3,3'-DICHLOROBENZIDINE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
3-NITROANILINE	28	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
4,6-DINITRO-2-METHYLPHENOL	28	UJ	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
4-BROMOPHENYL PHENYL ETHER	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
4-CHLORO-3-METHYLPHENOL	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
4-CHLOROANILINE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
4-CHLOROPHENYL PHENYL ETHER	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
4-METHYLPHENOL	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
4-NITROANILINE	28	UJ	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
4-NITROPHENOL	28	UJ	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
ACENAPHTHENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
ACENAPHTHYLENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
ANTHRACENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BENZO(A)ANTHRACENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BENZO(A)PYRENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L

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SAMPLE NUMBER	OFF-A-MW5S-01			OFF-A-MW6R-01			OFF-A-MW7S-01			OFF-A-MW8R-01			OFF-A-MW9R-01		
SAMPLE DATE	07/10/97			07/11/97			07/10/97			07/08/97			07/09/97		
LABORATORY ID	WN1807-7			WN1819-8			WN1807-2			WN1771-2			WN1787-2		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	00%			00%			00%			00%			00%		
FIELD DUPLICATE OF.															
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
SEMIVOLATILES															
BENZO(B)FLUORANTHENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BENZO(G,H,I)PERYLENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BENZO(K)FLUORANTHENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BIS(2-CHLOROETHOXY)METHANE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BIS(2-CHLOROETHYL)ETHER	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
BIS(2-ETHYLHEXYL)PHTHALATE	11	U	UG/L	14	U	UG/L	10	U	UG/L	14	U	UG/L	20	U	UG/L
BUTYLBENZYL PHTHALATE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CARBAZOLE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
CHRYSENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DI-N-BUTYL PHTHALATE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DI-N-OCTYL PHTHALATE	11	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L
DIBENZO(A,H)ANTHRACENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DIBENZOFURAN	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DIETHYL PHTHALATE	11	UJ	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
DIMETHYL PHTHALATE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
FLUORANTHENE	11	UJ	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
FLUORENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
HEXACHLOROBENZENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
HEXACHLOROBUTADIENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
HEXACHLOROCYCLOPENTADIENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
HEXACHLOROETHANE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
INDENO(1,2,3-CD)PYRENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
ISOPHORONE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
N-NITROSO-DI-N-PROPYLAMINE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
N-NITROSODIPHENYLAMINE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
NAPHTHALENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
NITROBENZENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
PENTACHLOROPHENOL	28	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L	25	U	UG/L
PHENANTHRENE	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
PHENOL	11	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L	10	U	UG/L
PYRENE	11	U	UG/L	10	U	UG/L	10	UJ	UG/L	10	UJ	UG/L	10	UJ	UG/L

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SAMPLE NUMBER	OFF-A-DUPL4	OFF-A-SW1-0506	OFF-A-SW2-0506	OFF-A-DUPL7	/ /
SAMPLE DATE	07/09/97	07/11/97	07/11/97	07/11/97	
LABORATORY ID	WN1787-5	WN1819-2	WN1819-3	WN1819-4	
QC_TYPE	NORMAL	NORMAL	NORMAL	NORMAL	
% SOLIDS	0 0 %	0 0 %	0 0 %	0 0 %	100 0 %
FIELD DUPLICATE OF.	OFF-A-MW9R-01			OFF-A-SW2-0506	

	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
SEMIVOLATILES															
1,2,4-TRICHLOROBENZENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
1,2-DICHLOROBENZENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
1,3-DICHLOROBENZENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
1,4-DICHLOROBENZENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
2,2'-OXYBIS(1-CHLOROPROPANE)	10	U	UG/L	11	UJ	UG/L	11	UJ	UG/L	10	UJ	UG/L			
2,4,5-TRICHLOROPHENOL	25	U	UG/L	28	U	UG/L	28	U	UG/L	25	U	UG/L			
2,4,6-TRICHLOROPHENOL	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
2,4-DICHLOROPHENOL	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
2,4-DIMETHYLPHENOL	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
2,4-DINITROPHENOL	25	U	UG/L	28	U	UG/L	28	U	UG/L	25	U	UG/L			
2,4-DINITROTOLUENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
2,6-DINITROTOLUENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
2-CHLORONAPHTHALENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
2-CHLOROPHENOL	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
2-METHYLNAPHTHALENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
2-METHYLPHENOL	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
2-NITROANILINE	25	U	UG/L	28	U	UG/L	28	U	UG/L	25	U	UG/L			
2-NITROPHENOL	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
3,3'-DICHLOROBENZIDINE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
3-NITROANILINE	25	U	UG/L	28	U	UG/L	28	U	UG/L	25	U	UG/L			
4,6-DINITRO-2-METHYLPHENOL	25	U	UG/L	28	U	UG/L	28	U	UG/L	25	U	UG/L			
4-BROMOPHENYL PHENYL ETHER	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
4-CHLORO-3-METHYLPHENOL	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
4-CHLOROANILINE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
4-CHLOROPHENYL PHENYL ETHER	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
4-METHYLPHENOL	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
4-NITROANILINE	25	U	UG/L	28	U	UG/L	28	U	UG/L	25	U	UG/L			
4-NITROPHENOL	25	U	UG/L	28	U	UG/L	28	U	UG/L	25	U	UG/L			
ACENAPHTHENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
ACENAPHTHYLENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
ANTHRACENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
BENZO(A)ANTHRACENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
BENZO(A)PYRENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			

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SAMPLE NUMBER	OFF-A-DUPL4	OFF-A-SW1-0506	OFF-A-SW2-0506	OFF-A-DUPL7	/ /
SAMPLE DATE	07/09/97	07/11/97	07/11/97	07/11/97	
LABORATORY ID	WN1787-5	WN1819-2	WN1819-3	WN1819-4	
QC_TYPE	NORMAL	NORMAL	NORMAL	NORMAL	
% SOLIDS	0 0 %	0 0 %	0 0 %	0 0 %	100 0 %
FIELD DUPLICATE OF	OFF-A-MW9R-01			OFF-A-SW2-0506	

	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
SEMIVOLATILES															
BENZO(B)FLUORANTHENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
BENZO(G,H,I)PERYLENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
BENZO(K)FLUORANTHENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
BIS(2-CHLOROETHOXY)METHANE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
BIS(2-CHLOROETHYL)ETHER	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
BIS(2-ETHYLHEXYL)PHTHALATE	10	U	UG/L	2	J	UG/L	2	J	UG/L	2	J	UG/L			
BUTYLBENZYL PHTHALATE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
CARBAZOLE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
CHRYSENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
DI-N-BUTYL PHTHALATE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
DI-N-OCTYL PHTHALATE	10	UJ	UG/L	11	UJ	UG/L	11	UJ	UG/L	10	UJ	UG/L			
DIBENZO(A,H)ANTHRACENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
DIBENZOFURAN	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
DIETHYL PHTHALATE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
DIMETHYL PHTHALATE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
FLUORANTHENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
FLUORENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
HEXACHLOROBENZENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
HEXACHLOROBUTADIENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
HEXACHLOROCYCLOPENTADIENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
HEXACHLOROETHANE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
INDENO(1,2,3-CD)PYRENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
ISOPHORONE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
N-NITROSO-DI-N-PROPYLAMINE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
N-NITROSODIPHENYLAMINE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
NAPHTHALENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
NITROBENZENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
PENTACHLOROPHENOL	25	U	UG/L	28	U	UG/L	28	U	UG/L	25	U	UG/L			
PHENANTHRENE	10	U	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			
PHENOL	10	U	UG/L	11	U	UG/L	2	J	UG/L	10	U	UG/L			
PYRENE	10	UJ	UG/L	11	U	UG/L	11	U	UG/L	10	U	UG/L			

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SAMPLE NUMBER	OFF-A-FB2			OFF-A-MW101-01			OFF-A-MW101-RB9			OFF-A-MW102-01			OFF-A-MW10S-01		
SAMPLE DATE	07/09/97			07/11/97			07/11/97			07/11/97			07/09/97		
LABORATORY ID	WN1787-8			WN1819-6			WN1819-5			WN1819-7			WN1787-3		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF.															
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
PESTICIDES/PCBs															
4,4'-DDD	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
4,4'-DDE	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
4,4'-DDT	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
ALDRIN	0 057	U	UG/L	0 050	U	UG/L	0 056	U	UG/L	0 051	U	UG/L	0 051	U	UG/L
ALPHA-BHC	0 057	U	UG/L	0 050	UJ	UG/L	0 056	UJ	UG/L	0 051	UJ	UG/L	0 051	U	UG/L
ALPHA-CHLORDANE	0 057	U	UG/L	0 050	U	UG/L	0 056	U	UG/L	0 051	U	UG/L	0 051	U	UG/L
AROCLOR-1016	1 1	U	UG/L	1 0	U	UG/L	1 1	U	UG/L	1 0	U	UG/L	1 0	U	UG/L
AROCLOR-1221	2 3	U	UG/L	2 0	U	UG/L	2 2	U	UG/L	2 0	U	UG/L	2 0	U	UG/L
AROCLOR-1232	1 1	U	UG/L	1 0	U	UG/L	1 1	U	UG/L	1 0	U	UG/L	1 0	U	UG/L
AROCLOR-1242	1 1	U	UG/L	1 0	U	UG/L	1 1	U	UG/L	1 0	U	UG/L	1 0	U	UG/L
AROCLOR-1248	1 1	U	UG/L	1 0	U	UG/L	1 1	U	UG/L	1 0	U	UG/L	1 0	U	UG/L
AROCLOR-1254	1 1	U	UG/L	1 0	U	UG/L	1 1	U	UG/L	1 0	U	UG/L	1 0	U	UG/L
AROCLOR-1260	1 1	U	UG/L	1 0	U	UG/L	1 1	U	UG/L	1 0	U	UG/L	1 0	U	UG/L
BETA-BHC	0 057	U	UG/L	0 050	U	UG/L	0 056	U	UG/L	0 051	U	UG/L	0 051	U	UG/L
DELTA-BHC	0 057	U	UG/L	0 050	U	UG/L	0 056	U	UG/L	0 051	U	UG/L	0 051	U	UG/L
DIELDRIN	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
ENDOSULFAN I	0 057	U	UG/L	0 050	U	UG/L	0 056	U	UG/L	0 051	U	UG/L	0 051	U	UG/L
ENDOSULFAN II	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
ENDOSULFAN SULFATE	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
ENDRIN	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
ENDRIN ALDEHYDE	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
ENDRIN KETONE	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
GAMMA-BHC (LINDANE)	0 057	U	UG/L	0 050	U	UG/L	0 056	U	UG/L	0 051	U	UG/L	0 051	U	UG/L
GAMMA-CHLORDANE	0 057	U	UG/L	0 050	U	UG/L	0 056	U	UG/L	0 051	U	UG/L	0 051	U	UG/L
HEPTACHLOR	0 057	U	UG/L	0 050	UJ	UG/L	0 056	UJ	UG/L	0 051	UJ	UG/L	0 051	U	UG/L
HEPTACHLOR EPOXIDE	0 057	U	UG/L	0 050	U	UG/L	0 056	U	UG/L	0 051	U	UG/L	0 051	U	UG/L
METHOXYCHLOR	0 57	U	UG/L	0 50	U	UG/L	0 56	U	UG/L	0 51	U	UG/L	0 51	U	UG/L
TOXAPHENE	5 7	U	UG/L	5 0	U	UG/L	5 6	U	UG/L	5 1	U	UG/L	5 1	U	UG/L

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SAMPLE NUMBER	OFF-A-MW10S-RB7			OFF-A-MW11R-01			OFF-A-MW11S-01			OFF-A-MW1R-01			OFF-A-MW1R-RB6		
SAMPLE DATE	07/09/97			07/10/97			07/10/97			07/08/97			07/08/97		
LABORATORY ID	WN1787-4			WN1807-5			WN1807-4			WN1771-3			WN1771-4		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF															
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
PESTICIDES/PCBs															
4,4'-DDD	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
4,4'-DDE	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
4,4'-DDT	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
ALDRIN	0 054	U	UG/L	0 053	U	UG/L	0 053	U	UG/L	0 051	U	UG/L	0 051	U	UG/L
ALPHA-BHC	0 054	U	UG/L	0 053	U	UG/L	0 053	U	UG/L	0 051	U	UG/L	0 051	U	UG/L
ALPHA-CHLORDANE	0 054	U	UG/L	0 053	U	UG/L	0 053	U	UG/L	0 051	U	UG/L	0 051	U	UG/L
AROCLOR-1016	1 1	U	UG/L	1 1	U	UG/L	1 1	U	UG/L	1 0	U	UG/L	1 0	U	UG/L
AROCLOR-1221	2 2	U	UG/L	2 1	U	UG/L	2 1	U	UG/L	2 0	U	UG/L	2 0	U	UG/L
AROCLOR-1232	1 1	U	UG/L	1 1	U	UG/L	1 1	U	UG/L	1 0	U	UG/L	1 0	U	UG/L
AROCLOR-1242	1 1	U	UG/L	1 1	U	UG/L	1 1	U	UG/L	1 0	U	UG/L	1 0	U	UG/L
AROCLOR-1248	1 1	U	UG/L	1 1	U	UG/L	1 1	U	UG/L	1 0	U	UG/L	1 0	U	UG/L
AROCLOR-1254	1 1	U	UG/L	1 1	U	UG/L	1 1	U	UG/L	1 0	U	UG/L	1 0	U	UG/L
AROCLOR-1260	1 1	U	UG/L	1 1	U	UG/L	1 1	U	UG/L	1 0	U	UG/L	1 0	U	UG/L
BETA-BHC	0 054	U	UG/L	0 053	U	UG/L	0 053	U	UG/L	0 051	U	UG/L	0 051	U	UG/L
DELTA-BHC	0 054	U	UG/L	0 053	U	UG/L	0 053	U	UG/L	0 051	U	UG/L	0 051	U	UG/L
DIELDRIN	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
ENDOSULFAN I	0 054	U	UG/L	0 053	U	UG/L	0 053	U	UG/L	0 051	U	UG/L	0 051	U	UG/L
ENDOSULFAN II	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
ENDOSULFAN SULFATE	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
ENDRIN	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
ENDRIN ALDEHYDE	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
ENDRIN KETONE	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
GAMMA-BHC (LINDANE)	0 054	U	UG/L	0 053	U	UG/L	0 053	U	UG/L	0 051	U	UG/L	0 051	U	UG/L
GAMMA-CHLORDANE	0 054	U	UG/L	0 053	U	UG/L	0 053	U	UG/L	0 051	U	UG/L	0 051	U	UG/L
HEPTACHLOR	0 054	U	UG/L	0 053	U	UG/L	0 053	U	UG/L	0 051	U	UG/L	0 051	U	UG/L
HEPTACHLOR EPOXIDE	0 054	U	UG/L	0 053	U	UG/L	0 053	U	UG/L	0 051	U	UG/L	0 051	U	UG/L
METHOXYCHLOR	0 54	U	UG/L	0 53	U	UG/L	0 53	U	UG/L	0 51	U	UG/L	0 51	U	UG/L
TOXAPHENE	5 4	U	UG/L	5 3	U	UG/L	5 3	U	UG/L	5 1	U	UG/L	5 1	U	UG/L

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SAMPLE NUMBER	OFF-A-MW2D-01			OFF-A-MW2S-01			OFF-A-MW3S-01			OFF-A-MW4S-01			OFF-A-DUPL5		
SAMPLE DATE	07/09/97			07/09/97			07/10/97			07/10/97			07/10/97		
LABORATORY ID	WN1787-6			WN1787-7			WN1807-3			WN1807-6			WN1807-9		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF													OFF-A-MW4S-01		
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
PESTICIDES/PCBs															
4,4'-DDD	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L	0,10	U	UG/L	0 10	U	UG/L
4,4'-DDE	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
4,4'-DDT	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
ALDRIN	0 050	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 050	U	UG/L
ALPHA-BHC	0 050	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 050	U	UG/L
ALPHA-CHLORDANE	0 050	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 050	U	UG/L
AROCLOR-1016	1 0	U	UG/L	1 0	U	UG/L	1 0	U	UG/L	1 0	U	UG/L	1 0	U	UG/L
AROCLOR-1221	2 0	U	UG/L	2 0	U	UG/L	2 0	U	UG/L	2 0	U	UG/L	2 0	U	UG/L
AROCLOR-1232	1 0	U	UG/L	1 0	U	UG/L	1 0	U	UG/L	1 0	U	UG/L	1 0	U	UG/L
AROCLOR-1242	1 0	U	UG/L	1 0	U	UG/L	1 0	U	UG/L	1 0	U	UG/L	1 0	U	UG/L
AROCLOR-1248	1 0	U	UG/L	1 0	U	UG/L	1 0	U	UG/L	1 0	U	UG/L	1 0	U	UG/L
AROCLOR-1254	1 0	U	UG/L	1 0	U	UG/L	1 0	U	UG/L	1 0	U	UG/L	1 0	U	UG/L
AROCLOR-1260	1 0	U	UG/L	1 0	U	UG/L	1 0	U	UG/L	1 0	U	UG/L	1 0	U	UG/L
BETA-BHC	0 050	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 050	U	UG/L
DELTA-BHC	0 050	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 050	U	UG/L
DIELDRIN	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
ENDOSULFAN I	0 050	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 050	U	UG/L
ENDOSULFAN II	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
ENDOSULFAN SULFATE	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
ENDRIN	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
ENDRIN ALDEHYDE	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
ENDRIN KETONE	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L	0 10	U	UG/L
GAMMA-BHC (LINDANE)	0 050	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 050	U	UG/L
GAMMA-CHLORDANE	0 050	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 050	U	UG/L
HEPTACHLOR	0 050	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 050	U	UG/L
HEPTACHLOR EPOXIDE	0 050	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 051	U	UG/L	0 050	U	UG/L
METHOXYCHLOR	0 50	U	UG/L	0 51	U	UG/L	0 51	U	UG/L	0 51	U	UG/L	0 50	U	UG/L
TOXAPHENE	5 0	U	UG/L	5 1	U	UG/L	5 1	U	UG/L	5 1	U	UG/L	5 0	U	UG/L

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SAMPLE NUMBER	OFF-A-MW4S-RB8			OFF-A-MW5S-01			OFF-A-MW6R-01			OFF-A-MW7S-01			OFF-A-MW8R-01		
SAMPLE DATE	07/10/97			07/10/97			07/11/97			07/10/97			07/08/97		
LABORATORY ID	WN1807-8			WN1807-7			WN1819-8			WN1807-2			WN1771-2		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF															
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
PESTICIDES/PCBs															
4,4'-DDD	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 10	U	UG/L
4,4'-DDE	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 10	U	UG/L
4,4'-DDT	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 10	U	UG/L
ALDRIN	0 054	U	UG/L	0 054	U	UG/L	0 053	U	UG/L	0 053	U	UG/L	0 051	U	UG/L
ALPHA-BHC	0 054	U	UG/L	0 054	U	UG/L	0 053	UJ	UG/L	0 053	U	UG/L	0 051	U	UG/L
ALPHA-CHLORDANE	0 054	U	UG/L	0 054	U	UG/L	0 053	U	UG/L	0 053	U	UG/L	0 051	U	UG/L
AROCLOR-1016	1 1	U	UG/L	1 1	U	UG/L	1 1	U	UG/L	1 1	U	UG/L	1 0	U	UG/L
AROCLOR-1221	2 2	U	UG/L	2 2	U	UG/L	2 1	U	UG/L	2 1	U	UG/L	2 0	U	UG/L
AROCLOR-1232	1 1	U	UG/L	1 1	U	UG/L	1 1	U	UG/L	1 1	U	UG/L	1 0	U	UG/L
AROCLOR-1242	1 1	U	UG/L	1 1	U	UG/L	1 1	U	UG/L	1 1	U	UG/L	1 0	U	UG/L
AROCLOR-1248	1 1	U	UG/L	1 1	U	UG/L	1 1	U	UG/L	1 1	U	UG/L	1 0	U	UG/L
AROCLOR-1254	1 1	U	UG/L	1 1	U	UG/L	1 1	U	UG/L	1 1	U	UG/L	1 0	U	UG/L
AROCLOR-1260	1 1	U	UG/L	1 1	U	UG/L	1 1	U	UG/L	1 1	U	UG/L	1 0	U	UG/L
BETA-BHC	0 054	U	UG/L	0 054	U	UG/L	0 053	U	UG/L	0 053	U	UG/L	0 051	U	UG/L
DELTA-BHC	0 054	U	UG/L	0 054	U	UG/L	0 053	U	UG/L	0 053	U	UG/L	0 051	U	UG/L
DIELDRIN	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 10	U	UG/L
ENDOSULFAN I	0 054	U	UG/L	0 054	U	UG/L	0 053	U	UG/L	0 053	U	UG/L	0 051	U	UG/L
ENDOSULFAN II	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 10	U	UG/L
ENDOSULFAN SULFATE	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 10	U	UG/L
ENDRIN	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 10	U	UG/L
ENDRIN ALDEHYDE	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 10	U	UG/L
ENDRIN KETONE	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 11	U	UG/L	0 10	U	UG/L
GAMMA-BHC (LINDANE)	0 054	U	UG/L	0 054	U	UG/L	0 053	U	UG/L	0 053	U	UG/L	0 051	U	UG/L
GAMMA-CHLORDANE	0 054	U	UG/L	0 054	U	UG/L	0 053	U	UG/L	0 053	U	UG/L	0 051	U	UG/L
HEPTACHLOR	0 054	U	UG/L	0 054	U	UG/L	0 053	UJ	UG/L	0 053	U	UG/L	0 051	U	UG/L
HEPTACHLOR EPOXIDE	0 054	U	UG/L	0 054	U	UG/L	0 053	U	UG/L	0 053	U	UG/L	0 051	U	UG/L
METHOXYCHLOR	0 54	U	UG/L	0 54	U	UG/L	0 53	U	UG/L	0 53	U	UG/L	0 51	U	UG/L
TOXAPHENE	5 4	U	UG/L	5 4	U	UG/L	5 3	U	UG/L	5 3	U	UG/L	5 1	U	UG/L

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SAMPLE NUMBER	OFF-A-MW9R-01			OFF-A-DUPL4			OFF-A-SW1-0506			OFF-A-SW2-0506			OFF-A-DUPL7		
SAMPLE DATE	07/09/97			07/09/97			07/11/97			07/11/97			07/11/97		
LABORATORY ID	WN1787-2			WN1787-5			WN1819-2			WN1819-3			WN1819-4		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF.				OFF-A-MW9R-01									OFF-A-SW2-0506		
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
PESTICIDES/PCBs															
4,4'-DDD	0 10	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L
4,4'-DDE	0 10	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L
4,4'-DDT	0 10	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L
ALDRIN	0 050	U	UG/L	0 050	U	UG/L	0 054	U	UG/L	0 052	U	UG/L	0 054	U	UG/L
ALPHA-BHC	0 050	U	UG/L	0 050	U	UG/L	0 054	UJ	UG/L	0 052	UJ	UG/L	0 054	UJ	UG/L
ALPHA-CHLORDANE	0 050	U	UG/L	0 050	U	UG/L	0 054	U	UG/L	0 052	U	UG/L	0 054	U	UG/L
AROCLOR-1016	1 0	U	UG/L	1 0	U	UG/L	1 1	U	UG/L	1 0	U	UG/L	1 1	U	UG/L
AROCLOR-1221	2 0	U	UG/L	2 0	U	UG/L	2 2	U	UG/L	2 1	U	UG/L	2 2	U	UG/L
AROCLOR-1232	1 0	U	UG/L	1 0	U	UG/L	1 1	U	UG/L	1 0	U	UG/L	1 1	U	UG/L
AROCLOR-1242	1 0	U	UG/L	1 0	U	UG/L	1 1	U	UG/L	1 0	U	UG/L	1 1	U	UG/L
AROCLOR-1248	1 0	U	UG/L	1 0	U	UG/L	1 1	U	UG/L	1 0	U	UG/L	1 1	U	UG/L
AROCLOR-1254	1 0	U	UG/L	1 0	U	UG/L	1 1	U	UG/L	1 0	U	UG/L	1 1	U	UG/L
AROCLOR-1260	1 0	U	UG/L	1 0	U	UG/L	1 1	U	UG/L	1 0	U	UG/L	1 1	U	UG/L
BETA-BHC	0 050	U	UG/L	0 050	U	UG/L	0 054	U	UG/L	0 052	U	UG/L	0 054	U	UG/L
DELTA-BHC	0 050	U	UG/L	0 050	U	UG/L	0 054	U	UG/L	0 052	U	UG/L	0 054	U	UG/L
DIELDRIN	0 10	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L
ENDOSULFAN I	0 050	U	UG/L	0 050	U	UG/L	0 054	U	UG/L	0 052	U	UG/L	0 054	U	UG/L
ENDOSULFAN II	0 10	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L
ENDOSULFAN SULFATE	0 10	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L
ENDRIN	0 10	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L
ENDRIN ALDEHYDE	0 10	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L
ENDRIN KETONE	0 10	U	UG/L	0 10	U	UG/L	0 11	U	UG/L	0 10	U	UG/L	0 11	U	UG/L
GAMMA-BHC (LINDANE)	0 050	U	UG/L	0 050	U	UG/L	0 054	U	UG/L	0 052	U	UG/L	0 054	U	UG/L
GAMMA-CHLORDANE	0 050	U	UG/L	0 050	U	UG/L	0 054	U	UG/L	0 052	U	UG/L	0 054	U	UG/L
HEPTACHLOR	0 050	U	UG/L	0 050	U	UG/L	0 054	UJ	UG/L	0 052	UJ	UG/L	0 054	UJ	UG/L
HEPTACHLOR EPOXIDE	0 050	U	UG/L	0 050	U	UG/L	0 054	U	UG/L	0 052	U	UG/L	0 054	U	UG/L
METHOXYCHLOR	0 50	U	UG/L	0 50	U	UG/L	0 54	U	UG/L	0 52	U	UG/L	0 54	U	UG/L
TOXAPHENE	5 0	U	UG/L	5 0	U	UG/L	5 4	U	UG/L	5 2	U	UG/L	5 4	U	UG/L

FTA003

TOTAL PETROLEUM HYDROCARBONS

7572-5.9

Brown & Root Environmental

INTERNAL CORRESPONDENCE

C-49-09-7-034

TO: **D. CONAN** **DATE:** **SEPTEMBER 15, 1997**

FROM: **TERRI L. SOLOMON** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION - TOTAL PETROLEUM HYDROCARBON**
CTO 288 - NETC NEWPORT, NEWPORT, RHODE ISLAND
SDG - FTA003

SAMPLES: 25/Aqueous/

OFF-A-MW8R-01	OFF-A-MW1R-01	OFF-A-MW1R-RB6
OFF-A-MW9R-01	OFF-A-MW10S-01	OFF-A-MW10S-RB7
OFF-A-DUPL4	OFF-A-MW2D-01	OFF-A-MW2S-01
OFF-A-FB2	OFF-A-MW7S-01	OFF-A-MW3S-01
OFF-A-MW11S-01	OFF-A-MW11R-01	OFF-A-MW4S-01
OFF-A-MW5S-01	OFF-A-MW4S-RB8	OFF-A-DUPL5
OFF-A-SW1-0506	OFF-A-SW2-0506	OFF-A-DUPL7
OFF-A-MW101-RB9	OFF-A-MW101-01	OFF-A-MW102-01
OFF-A-MW6R-01		

Overview

The sample set for CTO 288, NETC Newport, SDG FTA003, consists of twenty (20) aqueous environmental samples, four (4) rinsate blanks (OFF-A-MW1R-RB6, OFF-A-MW105-RB7, OFF-A-MW4S-RB8 and OFF-A-MW101-RB9) and one (1) field blank (OFF-A-FB2). Three (3) field duplicate pairs (OFF-A-MW9R-01 / OFF-A-DUPL4, OFF-A-MW4S-01 / OFF-A-DUPL5 and OFF-A-SW2-0506 / OFF-A-DUPL7) were included within this SDG.

All samples were analyzed for Total Petroleum Hydrocarbon (TPH). The samples were collected by Brown and Root Environmental on July 8, 9, 10 and 11, 1997 and analyzed by Katahdin Analytical Services under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. All analyses were conducted using EPA method 418.1.

These data were evaluated based on the following parameters:

* • Data Completeness
* • Holding Times
* • Calibration Verifications
* • Laboratory Blank Analyses
* • Field Blank Analyses
• Matrix Spike / Matrix Spike Duplicate Results
• Laboratory Control Sample Results
* • Field Duplicate Results
* • Analyte Quantitation
* • Detection Limits

* - All quality control criteria were met for this parameter.

The attached Table 1 summarizes the validation recommendations which were based on the following information:

Laboratory Control Sample results

The Laboratory Control Sample (LCS) results for Total Petroleum Hydrocarbon were below the 80% quality control limit. Nondetected results reported for the aforementioned parameter were qualified as estimated, "UJ". The results may be biased low.

Notes

The Matrix Spike Duplicate (MSD) %R for Total Petroleum Hydrocarbon was > 125% quality control limit. However, no validation actions were warranted as all sample results reported for the aforementioned parameter were nondetects.

Executive Summary

Laboratory Performance: The LCS %R for Total Petroleum Hydrocarbon was < 80% quality control limit.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994, "EPA Region I Functional Guidelines for Evaluating Inorganic Analyses", February 1989 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide " (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Brown and Root Environmental
Tem L. Solomon
Chemist

Brown and Root Environmental
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation.

NETC NEWPORT
SDG FTA003
TABLE 1 - RECOMMENDATION SUMMARY

Total petroleum Hydrocarbon	J[1]

If the field is left blank, the qualifier is A - Accept all data.

J[1] - Accept data but qualify nondetected results as biased estimated, "UJ", as a result of low LCS %R.

CTO288 - NETC NEWPORT
WATER DATA
KATAHDIN
SDG: FTA003

SAMPLE NUMBER:	OFF-A-FB2				OFF-A-MW101-01				OFF-A-MW101-RB9				OFF-A-MW102-01				OFF-A-MW10S-RB7			
SAMPLE DATE:	07/09/97				07/11/97				07/11/97				07/11/97				07/09/97			
LABORATORY ID	WN1787-8				WN1819-6				WN1819-5				WN1819-7				WN1787-4			
QC_TYPE	NORMAL				NORMAL				NORMAL				NORMAL				NORMAL			
% SOLIDS	0 0 %				0 0 %				0 0 %				0 0 %				0 0 %			
FIELD DUPLICATE OF.																				
	RESULT	QUAL	UNITS		RESULT	QUAL	UNITS		RESULT	QUAL	UNITS		RESULT	QUAL	UNITS		RESULT	QUAL	UNITS	
TOTAL PETROLEUM HYDROCARBONS																				
TOTAL PETROLEUM HYDROCARBONS	1 1	UJ	MG/L		1 0	UJ	MG/L		1 1	UJ	MG/L		1 0	UJ	MG/L		1 1	UJ	MG/L	

CTO288 - NETC NEWPORT
WATER DATA
KATAHDIN
SDG: FTA003

SAMPLE NUMBER	OFF-A-MW10S01			OFF-A-MW11R-01			OFF-A-MW11S-01			OFF-A-MW1R-01			OFF-A-MW1R-RB6		
SAMPLE DATE	07/09/97			07/10/97			07/10/97			07/08/97			07/08/97		
LABORATORY ID	WN1787-3			WN1807-5			WN1807-4			WN1771-3			WN1771-4		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF.															
	RESULT	**QUAL**	**UNITS**	**RESULT**	**QUAL**	**UNITS**	**RESULT**	**QUAL**	**UNITS**	**RESULT**	**QUAL**	**UNITS**	**RESULT**	**QUAL**	**UNITS**
TOTAL PETROLEUM HYDROCARBONS															
TOTAL PETROLEUM HYDROCARBONS	1 0	UJ	MG/L	1 1	UJ	MG/L	1 1	UJ	MG/L	1 0	UJ	MG/L	1 0	UJ	MG/L

CTO288 - NETC NEWPORT
WATER DATA
KATAHDIN
SDG: FTA003

SAMPLE NUMBER.	OFF-A-MW2D-01	OFF-A-MW2S-01	OFF-A-MW3S-01	OFF-A-MW4S-01	OFF-A-DUPL5
SAMPLE DATE·	07/09/97	07/09/97	07/10/97	07/10/97	07/10/97
LABORATORY ID	WN1787-6	WN1787-7	WN1807-3	WN1807-6	WN1807-9
QC_TYPE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS.	0 0 %	0 0 %	0 0 %	0 0 %	0 0 %
FIELD DUPLICATE OF·					OFF-A-MW4S-01

	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
TOTAL PETROLEUM HYDROCARBONS															
TOTAL PETROLEUM HYDROCARBONS	1 0	UJ	MG/L	1 0	UJ	MG/L	1 0	UJ	MG/L	1 0	UJ	MG/L	1 0	UJ	MG/L

CTO288 - NETC NEWPORT
WATER DATA
KATAHDIN
SDG: FTA003

SAMPLE NUMBER.	OFF-A-MW4S-RB8			OFF-A-MW5S-01			OFF-A-MW6R-01			OFF-A-MW7S-01			OFF-A-MW8R-01		
SAMPLE DATE	07/10/97			07/10/97			07/11/97			07/10/97			07/08/97		
LABORATORY ID	WN1807-8			WN1807-7			WN1819-8			WN1807-2			WN1771-2		
QC_TYPE.	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF															
	RESULT	**QUAL**	**UNITS**	**RESULT**	**QUAL**	**UNITS**	**RESULT**	**QUAL**	**UNITS**	**RESULT**	**QUAL**	**UNITS**	**RESULT**	**QUAL**	**UNITS**
TOTAL PETROLEUM HYDROCARBONS															
TOTAL PETROLEUM HYDROCARBONS	1 1	UJ	MG/L	1 1	UJ	MG/L	1 1	UJ	MG/L	1 1	UJ	MG/L	1 0	UJ	MG/L

CTO288 - NETC NEWPORT
WATER DATA
KATAHDIN
SDG: FTA003

SAMPLE NUMBER:	OFF-A-MW9R-01	OFF-A-DUPL4	OFF-A-SW1-0506	OFF-A-SW2-0506	OFF-A-DUPL7
SAMPLE DATE	07/09/97	07/09/97	07/11/97	07/11/97	07/11/97
LABORATORY ID	WN1787-2	WN1787-5	WN1819-2	WN1819-3	WN1819-4
QC_TYPE	NORMAL	NORMAL	NORMAL	NORMAL	NORMAL
% SOLIDS	0 0 %	0 0 %	0 0 %	0 0 %	0 0 %
FIELD DUPLICATE OF.		OFF-A-MW9R-01			OFF-A-SW2-0506

	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
TOTAL PETROLEUM HYDROCARBONS															
TOTAL PETROLEUM HYDROCARBONS	1 0	UJ	MG/L	1 0	UJ	MG/L	1 1	UJ	MG/L	1 0	UJ	MG/L	1 1	UJ	MG/L

FTA003

TAL METALS

7572-5.9

Brown & Root Environmental

INTERNAL CORRESPONDENCE

C-49-09-7-034

TO: **D. CONAN** **DATE:** **SEPTEMBER 15, 1997**

FROM: **TERRI L. SOLOMON** **COPIES:** **DV FILE**

SUBJECT: **INORGANIC DATA VALIDATION - TAL METALS**
CTO 288 - NETC NEWPORT, NEWPORT, RHODE ISLAND
SDG - FTA003

SAMPLES: 30/Aqueous/

OFF-A-MW8R-01	OFF-A-MW1R-01	OFF-A-MW1R-RB6
OFF-A-MW9R-01	OFF-A-MW10S-01	OFF-A-MW10S-RB7
OFF-A-DUPL4	OFF-A-MW2D-01	OFF-A-MW2S-01
OFF-A-FB2	OFF-A-MW7S-01	OFF-A-MW3S-01
OFF-A-MW11S-01	OFF-A-MW11R-01	OFF-A-MW4S-01
OFF-A-MW5S-01	OFF-A-MW4S-RB8	OFF-A-DUPL5
OFF-A-SW1-0506	OFF-A-SW2-0506	OFF-A-DUPL7
OFF-A-MW101-RB9	OFF-A-MW101-01	OFF-A-MW102-01
OFF-A-MW6R-01	OFF-A-MW9R-01-F	OFF-A-MW101-01-F
OFF-A-MW101-RB9-F	OFF-A-MW102-01-F	OFF-A-MW6R-01-F

Overview

The sample set for CTO 288, NETC Newport, SDG FTA003, consists of twenty-four (24) aqueous environmental samples, five rinsate blanks (OFF-A-MW1R-RB6, OFF-A-MW10S-RB7, OFF-A-MW4S-RB8, OFF-A-MW101-RB9 and OFF-A-MW101-RB9-F) and one (1) field blank (OFF-A-FB2). Three (3) field duplicate pairs (OFF-A-MW9R-01 / OFF-A-DUPL4, OFF-A-MW4S-01 / OFF-A-DUPL5 and OFF-A-SW2-0506 / OFF-A-DUPL7) were included within this SDG.

All samples, with the exception of those designated -F, were analyzed for Target Analyte List (TAL) metals. The samples designated -F were analyzed for dissolved TAL metals. The samples were collected by Brown and Root Environmental on July 8, 9, 10 and 11, 1997 and analyzed by Katahdin Analytical Services under Naval Facilities Engineering Service Center (NFESC) Quality Assurance/Quality Control (QA/QC) criteria. All analyses were conducted using Contract Laboratory (CLP) Statement of Work (SOW) ILM04.0 analytical and reporting protocols. All analyses, with the exception of mercury, were conducted using Inductively Coupled Plasma (ICP) methodologies. Mercury analyses were conducted using cold vapor AA.

These data were evaluated based on the following parameters:

- Data Completeness
- Holding Times
- Calibration Verifications
- Laboratory Blank Analyses
- Field Blank Analyses
- Interference Check Sample (ICS) Results
- Matrix Spike Results
- Laboratory Duplicate Results
- Field Duplicate Results
- Laboratory Control Sample Results
- ICP Serial Dilution Results
- Analyte Quantitation
- Detection Limits

* - All quality control criteria were met for this parameter.

The attached Table 1 summarizes the validation recommendations which were based on the following information:

Calibration Verifications

The Contract Required Detection Limit (CRDL) Percent Recoveries (%Rs) for cadmium, iron, lead, magnesium and sodium were > 120% quality control limit. The positive results < 3X CRDL reported for the aforementioned analytes were qualified as estimated, "J".

The CRDL %Rs for potassium and thallium were < 80% quality control limit. The positive results and nondetects reported for the aforementioned analytes were qualified as estimated, "J" and "UJ", respectively.

The CRDL %R for aluminum exhibited recoveries both above and below the 80-120% quality control limits. The nondetected results reported for the aforementioned analyte were qualified as estimated, "UJ".

Laboratory Blank Analyses

The following contaminants were detected in the laboratory method / preparation / rinsate blanks at the following maximum concentrations:

Analyte	Maximum Concentration	Action Level (aqueous)
aluminum	118.36 ug/L	591.8 ug/L
antimony[1]	12.350 ug/L	61.75 ug/L
arsenic	1.79 ug/L	8.95 ug/L
barium	1.01 ug/L	5.05 ug/L
beryllium	1.21 ug/L	6.05 ug/L
cadmium	0.46 ug/L	2.3 ug/L
calcium	124.54 ug/L	622.7 ug/L
chromium	0.60 ug/L	3.0 ug/L
cobalt	0.82 ug/L	4.1 ug/L
copper	2.49 ug/L	12.45 ug/L
iron	44.64 ug/L	223.2 ug/L
magnesium	117.88 ug/L	589.4 ug/L
manganese	1.48 ug/L	7.4 ug/L
manganese[2]	3.4 ug/L	17.0 ug/L
nickel	14.25 ug/L	71.25 ug/L
potassium[1]	469.190 ug/L	2345.95 ug/L
silver	3.19 ug/L	15.95 ug/L
sodium[1]	509.83 ug/L	2549 ug/L
sodium[2]	1010 ug/L	5050 ug/L
thallium	4.67 ug/L	23.35 ug/L
zinc	3.71 ug/L	18.55 ug/L
zinc[3]	12.5 ug/L	62.5 ug/L

Samples affected: All

(1) Maximum concentration present in an aqueous preparation blank.
(2) Maximum concentration present in a field blank.
(3) Maximum concentration present in a rinsate blank.
(4) Maximum concentration present in a filtered rinsate blank.

An action level of 5X the maximum concentration has been used to evaluate the sample data for blank contamination. Sample aliquot and dilution factors were taken into consideration when evaluating for blank contamination. Positive results less than the action level for aluminum, antimony, arsenic, banum, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, magnesium, manganese, nickel, silver, thallium and zinc have been qualified as nondetected "U". No actions were required for the remaining analytes as all results were either greater than the action levels or were nondetects. It should be noted that surface waters (SW) sre not qualified for field blank contamination.

Blank results > 2X the negative IDL may indicate instrumental problems. The possibility of false negatives may exist. Positive results and nondetect for aluminum, copper, lead, potassium and mercury have been qualified as estimated, "J" and "UJ", respectively.

Interference Check Sample Results

The interfering analyte magnesium was present in sample OFF-A-DUPL7 at a concentration which was comparable to the level of magnesium in the Interference Check Sample (ICS) solution. Several analytes namely barium, beryllium, cadmium, chromium, copper, lead, manganese and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for beryllium, cadmium, chromium and copper in the affected sample. The positive results reported for chromium and copper were qualified as estimated, "J". The nondetected result reported for beryllium was qualified as estimated, "UJ". The positive result reported for cadmium received no validation flag as the result was qualified as blank contamination.

The interfering analyte magnesium was present in sample OFF-A-MW10S-01 at a concentration which was comparable to the level of magnesium in the Interference Check Sample (ICS) solution. Several analytes namely arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, selenium, sodium and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for arsenic, beryllium, cadmium, chromium, copper, lead, nickel selenium and zinc in the affected sample. The positive results reported for chromium, copper and lead were qualified as estimated, "J". The nondetected results reported for beryllium and selenium were qualified as estimated, "UJ". The positive results reported for arsenic, cadmium, nickel and zinc received no validation flags as the results were qualified as blank contamination.

The interfering analyte magnesium was present in sample OFF-A-MW11S-01 at a concentration which was comparable to the level of magnesium in the Interference Check Sample (ICS) solution. Several analytes namely banum, beryllium, cadmium, chromium, copper, lead, manganese and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for beryllium, chromium, cobalt, copper, lead and zinc in the affected sample. The positive results reported for chromium and lead were qualified as estimated, "J". The nondetected result reported for beryllium was qualified as estimated, "UJ". The positive results reported for cobalt, copper and zinc received no validation flags as the results were qualified as blank contamination.

The interfering analytes calcium and magnesium were present in sample OFF-A-MW2S-01 at concentrations which were comparable to the levels of calcium and magnesium in the Interference Check Sample (ICS) solution. Several analytes namely arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, selenium and zinc were present in the ICS solution at concentrations which exceeded 2X the Instrument Detection Limit (IDL). Interference affects exist for arsenic, beryllium, cadmium, chromium, cobalt, lead, nickel and selenium in the affected sample. The positive results reported for cadmium, chromium, cobalt and lead were qualified as estimated, "J". The nondetected results reported for beryllium and selenium were qualified as estimated, "UJ". The positive results reported for arsenic and nickel received no validation flags as the results were qualified as blank contamination.

Matrix Spike Results

The Matrix Spike Percent Recovery (%R) for iron was > 125% quality control limit. The positive results reported for the aforementioned analyte were qualified as estimated, "J".

Field Duplicate Results

Field duplicate imprecision was noted for sample pair OFF-A-SW2-0506 / OFF-A-DUPL7 for aluminum, calcium, iron, magnesium, manganese, potassium and sodium. The positive results reported for the aforementioned analytes were qualified as estimated, "J".

Not s

Positive sample results < 2X IDL (Instrument Detection Limit) for cadmium, chromium, cobalt, lead and vanadium were qualified as estimated, "J".

It should be noted that the laboratory reported three (3) significant figures for some analytes whose value was less than 10. The spreadsheets have been corrected (rounded) to present two (2) significant figures below values of 10.

The Continuing Calibration Verifications (CCVs) for banum, cobalt and nickel analyzed on July 16, 1997 (CCVs #4 and #5) w re below the 90% quality control limit. However, no validation actions were warranted as no environmental samples were affected by this noncompliance.

The CRDL %R for calcium was > 120% quality control limit. However, no validation actions were warranted as the sample results were either > 3X CRDL or were qualified as blank contamination.

The MS %R for selenium was > 125% quality control limit. However, no validation actions were warranted as all sample results reported for selenium were nondetects.

Executive Summary

Laboratory Performance: The CRDL %Rs for several analytes were outside the 80-120% quality control limits. Several analytes were present in the laboratory method / preparation blanks.

Other Factors Affecting Data Quality: Several analytes were present in the rinsate blanks. The interfering analytes calcium and/or magnesium were present in several analytes. The MS %R for iron was > 125% quality control limit. Field duplicate imprecision was noted for aluminum, calcium, iron, magnesium, manganese, potassium and sodium.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Inorganic Review", February 1994, "EPA Region I Functional Guidelines for Evaluating Inorganic Analyses", February 1989 and the NFESC document entitled "Navy Installation Restoration Laboratory Quality Assurance Guide " (NFESC 2/96).

The text of this report has been formulated to address only those problem areas affecting data quality.

"I attest that the data referenced herein were validated according to the agreed upon validation criteria as specified in the NFESC Guidelines and the Quality Assurance Project Plan (QAPP)."

Brown and Root Environmental
Terri L. Solomon
Chemist

Brown and Root Environmental
Joseph A. Samchuck
Quality Assurance Officer

Attachments:

1. Appendix A - Qualified Analytical Results
2. Appendix B - Results as reported by the Laboratory
3. Appendix C - Support Documentation.

NETC NEWPORT
SDG FTA003
TABLE 1 - RECOMMENDATION SUMMARY

aluminum	A^1	$J^{1,2,5}$	magnesium	A^1	$J^{2,5}$
antimony	A^1		manganese	A^1	J^5
arsenic	A^1		mercury		J^1
barium	A^1		nickel	A^1	
beryllium	A^1	J^3	potassium		$J^{1,2,5}$
cadmium	A^1	$J^{2,3,6}$	selenium		J^3
calcium	A^1	J^5	silver	A^1	
chromium	A^1	$J^{3,6}$	sodium		$J^{2,5}$
cobalt	A^1	$J^{3,6}$	thallium	A^1	J^2
copper	A^1	$J^{1,3}$	vanadium		J^6
iron	A^1	$J^{2,4,5}$	zinc	A^1	
lead		$J^{1,2,3,6}$			

If the field is left blank, the qualifier is A - Accept all data.

A^1 - Accept data but qualify data as nondetected, "U", as a result of laboratory blank contamination.

J^1 - Accept data but qualify positive results and nondetects as estimated, "J" and "UJ", respectively, as a result of instrument drift.

J^2 - Accept data but qualify positive results and nondetects as estimated, "J" and "UJ", respectively, as a result of CRDL %R.

J^3 - Accept data but qualify positive results and nondetects as estimated, "J" and "UJ", respectively, as a result of ICP Interference.

J^4 - Accept data but qualify positive results as estimated, "J", as a result of high MS %R.

J^5 - Accept data but qualify positive results as estimated, "J", as a result of field duplicate imprecision.

J^6 - Accept data but qualify positive results < 2X IDL as estimated, "J".

CTO288 - NETC NEWPORT
WATER DATA
KATAHDIN
SDG: FTA003

SAMPLE NUMBER	OFF-A-FB2			OFF-A-MW101-01			OFF-A-MW101-01-F			OFF-A-MW101-RB9			OFF-A-MW101-RB9-F		
SAMPLE DATE	07/09/97			07/11/97			07/11/97			07/11/97			07/11/97		
LABORATORY ID	WN1787-8			WN1819-6			WN1819-10			WN1819-5			WN1819-9		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF.															
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
INORGANICS															
ALUMINUM	83 9	U	UG/L	14 3	UJ	UG/L	14 3	UJ	UG/L	14 3	UJ	UG/L	14 3	UJ	UG/L
ANTIMONY	2 1	U	UG/L	2 1	U	UG/L	2 1	U	UG/L	2 1	U	UG/L	2 1	U	UG/L
ARSENIC	1 8	U	UG/L	44 5		UG/L	28 3		UG/L	1 8	U	UG/L	1 8	U	UG/L
BARIUM	0 13	U	UG/L	35 3		UG/L	11 0		UG/L	0 57	U	UG/L	0 13	U	UG/L
BERYLLIUM	0 14	U	UG/L	0 14	U	UG/L	0 14	U	UG/L	0 14	U	UG/L	0 21	U	UG/L
CADMIUM	0 19	U	UG/L	0 19	U	UG/L	0 19	U	UG/L	0 19	U	UG/L	0 19	U	UG/L
CALCIUM	25 6	U	UG/L	16200	J	UG/L	15900	J	UG/L	47 7	U	UG/L	39 0	U	UG/L
CHROMIUM	0 53	U	UG/L	3 2		UG/L	0 53	U	UG/L	0 53	U	UG/L	0 53	U	UG/L
COBALT	0 51	U	UG/L	19 5		UG/L	3 8	U	UG/L	3 8	U	UG/L	3 8	U	UG/L
COPPER	0 74	UJ	UG/L	3 6	U	UG/L	3 2	U	UG/L	1 7	U	UG/L	2 0	U	UG/L
IRON	9 9	U	UG/L	11900	J	UG/L	4640	J	UG/L	34 2	U	UG/L	9 9	U	UG/L
LEAD	1 4	UJ	UG/L	1 4	UJ	UG/L	1 4	UJ	UG/L	1 4	UJ	UG/L	1 4	UJ	UG/L
MAGNESIUM	64 7	U	UG/L	20000	J	UG/L	19900	J	UG/L	52 8	U	UG/L	4 8	U	UG/L
MANGANESE	3 4	J	UG/L	441	J	UG/L	468	J	UG/L	0 45	U	UG/L	0 10	U	UG/L
MERCURY	0 01	UJ	UG/L	0 01	UJ	UG/L	0 02		UG/L	0 01	UJ	UG/L	0 01	UJ	UG/L
NICKEL	0 72	U	UG/L	1 7	U	UG/L	0 72	U	UG/L	0 72	U	UG/L	0 72	U	UG/L
POTASSIUM	346	UJ	UG/L	20200	J	UG/L	20000	J	UG/L	346	UJ	UG/L	346	UJ	UG/L
SELENIUM	2 9	U	UG/L	2 9	U	UG/L	2 9	U	UG/L	2 9	U	UG/L	2 9	U	UG/L
SILVER	0 82	U	UG/L	0 82	U	UG/L	0 82	U	UG/L	0 82	U	UG/L	0 82	U	UG/L
SODIUM	1010	J	UG/L	339000	J	UG/L	353000	J	UG/L	546	J	UG/L	463	U	UG/L
THALLIUM	3 9	UJ	UG/L	3 9	UJ	UG/L	3 9	UJ	UG/L	3 9	UJ	UG/L	3 9	UJ	UG/L
VANADIUM	0 57	U	UG/L	0 57	U	UG/L	0 57	U	UG/L	0 57	U	UG/L	0 57	U	UG/L
ZINC	2 5	U	UG/L	4 8	U	UG/L	10 0	U	UG/L	4 8		UG/L	1 2	U	UG/L

SAMPLE NUMBER:	OFF-A-MW102-01			OFF-A-MW102-01-F			OFF-A-MW10S-RB7			OFF-A-MW10S01			OFF-A-MW11R-01		
SAMPLE DATE	07/11/97			07/11/97			07/09/97			07/09/97			07/10/97		
LABORATORY ID	WN1819-7			WN1819-11			WN1787-4			WN1787-3			WN1807-5		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS.	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF:															
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
INORGANICS															
ALUMINUM	885	J	UG/L	14 3	UJ	UG/L	80 2	U	UG/L	564	U	UG/L	98 2	U	UG/L
ANTIMONY	2 1	U	UG/L	2 1	U	UG/L	2 1	U	UG/L	2 1	U	UG/L	2 1	U	UG/L
ARSENIC	1 8	U	UG/L	1 8	U	UG/L	1 8	U	UG/L	2 9	U	UG/L	4 0	U	UG/L
BARIUM	390		UG/L	319		UG/L	0 48	U	UG/L	60 0		UG/L	5 3		UG/L
BERYLLIUM	0 14	U	UG/L	0 14	U	UG/L	0 14	U	UG/L	0 14	UJ	UG/L	0 14	U	UG/L
CADMIUM	0 52	U	UG/L	0 19	U	UG/L	0 19	U	UG/L	0 28	U	UG/L	0 19	U	UG/L
CALCIUM	93200	J	UG/L	89400	J	UG/L	8 8	U	UG/L	199000	J	UG/L	53500	J	UG/L
CHROMIUM	19 8		UG/L	0 53	U	UG/L	0 53	U	UG/L	10 8	J	UG/L	39 9		UG/L
COBALT	3 8	U	UG/L	3 8	U	UG/L	0 51	U	UG/L	27 8		UG/L	6 1		UG/L
COPPER	12 3	U	UG/L	3 9	U	UG/L	0 74	UJ	UG/L	14 5	J	UG/L	3 8	U	UG/L
IRON	12200	J	UG/L	493	J	UG/L	10 1	U	UG/L	2250	J	UG/L	6480	J	UG/L
LEAD	27 6	J	UG/L	1 4	UJ	UG/L	1 4	UJ	UG/L	8 7	J	UG/L	1 4	UJ	UG/L
MAGNESIUM	232000	J	UG/L	232000	J	UG/L	25 0	U	UG/L	461000	J	UG/L	107000	J	UG/L
MANGANESE	1180	J	UG/L	1120	J	UG/L	0 35	U	UG/L	4450	J	UG/L	3460	J	UG/L
MERCURY	0 15	J	UG/L	0 01	UJ	UG/L	0 01	UJ	UG/L	0 01	UJ	UG/L	0 01	UJ	UG/L
NICKEL	13 5	U	UG/L	1 9	U	UG/L	0 72	U	UG/L	11 9	U	UG/L	31 5	U	UG/L
POTASSIUM	97000	J	UG/L	98600	J	UG/L	346	UJ	UG/L	156000	J	UG/L	54200	J	UG/L
SELENIUM	2 9	U	UG/L	2 9	U	UG/L	2 9	U	UG/L	2 9	UJ	UG/L	2 9	U	UG/L
SILVER	1 8	U	UG/L	1 8	J	UG/L	0 82	U	UG/L	3 3	U	UG/L	0 82	J	UG/L
SODIUM	2260000	J	UG/L	2340000	J	UG/L	137	U	UG/L	5130000	J	UG/L	1010000	U	UG/L
THALLIUM	5 7	U	UG/L	3 9	UJ	UG/L	3 9	UJ	UG/L	5 0	U	UG/L	3 9	UJ	UG/L
VANADIUM	2 0		UG/L	0 57	U	UG/L	0 57	U	UG/L	0 59	J	UG/L	0 57	U	UG/L
ZINC	128		UG/L	16 0	U	UG/L	2 6	U	UG/L	44 1	U	UG/L	33 1	U	UG/L

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SDG: FTA003

SAMPLE NUMBER:	OFF-A-MW11S-01			OFF-A-MW1R-01			OFF-A-MW1R-RB6			OFF-A-MW2D-01			OFF-A-MW2S-01		
SAMPLE DATE	07/10/97			07/08/97			07/08/97			07/09/97			07/09/97		
LABORATORY ID	WN1807-4			WN1771-3			WN1771-4			WN1787-6			WN1787-7		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF.															
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
INORGANICS															
ALUMINUM	487	U	UG/L	665	J	UG/L	78 9	U	UG/L	396	U	UG/L	101	U	UG/L
ANTIMONY	2 1	U	UG/L	2 1	U	UG/L	2 1	U	UG/L	2 8	U	UG/L	2 1	U	UG/L
ARSENIC	1 8	U	UG/L	1 8	U	UG/L	1 8	U	UG/L	1 8	U	UG/L	1 8	U	UG/L
BARIUM	112		UG/L	13 9		UG/L	0 24	U	UG/L	10 9		UG/L	183		UG/L
BERYLLIUM	0 14	UJ	UG/L	0 14	U	UG/L	0 14	U	UG/L	0 14	U	UG/L	0 14	UJ	UG/L
CADMIUM	0 19	U	UG/L	0 19	U	UG/L	0 19	U	UG/L	0 19	U	UG/L	2 4	J	UG/L
CALCIUM	196000	J	UG/L	92500	J	UG/L	7 2	U	UG/L	63700	J	UG/L	281000	J	UG/L
CHROMIUM	12 4	J	UG/L	33 2		UG/L	0 53	U	UG/L	7 3		UG/L	3 6	J	UG/L
COBALT	0 94	U	UG/L	33 8		UG/L	0 51	U	UG/L	3 6	U	UG/L	14 3	J	UG/L
COPPER	6 8	U	UG/L	1 4	U	UG/L	0 74	UJ	UG/L	2 9	U	UG/L	139	J	UG/L
IRON	1120	J	UG/L	1260	J	UG/L	9 9	U	UG/L	1570	J	UG/L	1580	J	UG/L
LEAD	7 9	J	UG/L	1 6	J	UG/L	1 4	UJ	UG/L	5 0	J	UG/L	19 4	J	UG/L
MAGNESIUM	323000	J	UG/L	22000	J	UG/L	4 8	U	UG/L	70600	J	UG/L	718000	J	UG/L
MANGANESE	1340	J	UG/L	1580	J	UG/L	0 33	U	UG/L	6390	J	UG/L	396	J	UG/L
MERCURY	0 01	UJ	UG/L	0 01	UJ	UG/L	0 01	UJ	UG/L	0 01	UJ	UG/L	0 02	J	UG/L
NICKEL	9 3	U	UG/L	61 2	U	UG/L	0 97	U	UG/L	8 8	U	UG/L	25 0	U	UG/L
POTASSIUM	118000	J	UG/L	7980	J	UG/L	346	UJ	UG/L	39200	J	UG/L	258000	J	UG/L
SELENIUM	2 9	U	UG/L	2 9	U	UG/L	2 9	U	UG/L	2 9	U	UG/L	2 9	UJ	UG/L
SILVER	1 9	J	UG/L	0 82	U	UG/L	0 82	U	UG/L	0 82	U	UG/L	5 1	U	UG/L
SODIUM	2760000	J	UG/L	127000	J	UG/L	113	U	UG/L	429000	J	UG/L	5960000	J	UG/L
THALLIUM	3 9	UJ	UG/L	3 9	UJ	UG/L	3 9	UJ	UG/L	3 9	UJ	UG/L	4 1	U	UG/L
VANADIUM	1 7		UG/L	0 57	U	UG/L	0 57	U	UG/L	0 57	U	UG/L	0 57	U	UG/L
ZINC	15 2	U	UG/L	52 0	U	UG/L	2 8	U	UG/L	13 7	U	UG/L	1570		UG/L

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WATER DATA
KATAHDIN
SDG: FTA003

SAMPLE NUMBER	OFF-A-MW3S-01			OFF-A-MW4S-01			OFF-A-DUPL5			OFF-A-MW4S-RB8			OFF-A-MW5S-01		
SAMPLE DATE	07/10/97			07/10/97			07/10/97			07/10/97			07/10/97		
LABORATORY ID	WN1807-3			WN1807-9			WN1807-6			WN1807-8			WN1807-7		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF.							OFF-A-MW4S-01								
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
INORGANICS															
ALUMINUM	13000	J	UG/L	923	J	UG/L	1060	J	UG/L	14 3	UJ	UG/L	1300	J	UG/L
ANTIMONY	2 1	U	UG/L	2 1	U	UG/L	2 1	U	UG/L	2 1	U	UG/L	2 1	U	UG/L
ARSENIC	49 8		UG/L	6 9	U	UG/L	6 4	U	UG/L	1 8	U	UG/L	1 8	U	UG/L
BARIUM	93 2		UG/L	8 2		UG/L	8 0		UG/L	0 24	U	UG/L	12 2		UG/L
BERYLLIUM	0 14	U	UG/L	0 14	U	UG/L	0 14	U	UG/L	0 14	U	UG/L	0 14	U	UG/L
CADMIUM	3 4	J	UG/L	0 19	U	UG/L	0 19	U	UG/L	0 19	U	UG/L	0 19	U	UG/L
CALCIUM	46300	J	UG/L	18500	J	UG/L	18800	J	UG/L	25 6	U	UG/L	76800	J	UG/L
CHROMIUM	37 8		UG/L	5 0		UG/L	5 6		UG/L	0 53	U	UG/L	15 6		UG/L
COBALT	22 4		UG/L	16 1		UG/L	15 6		UG/L	0 51	U	UG/L	1 4	U	UG/L
COPPER	166	J	UG/L	3 2	U	UG/L	3 4	U	UG/L	1 5	U	UG/L	3 4	U	UG/L
IRON	129000	J	UG/L	6490	J	UG/L	7010	J	UG/L	13 2	U	UG/L	3180	J	UG/L
LEAD	207	J	UG/L	2 2	J	UG/L	2 8	J	UG/L	1 4	UJ	UG/L	1 4	UJ	UG/L
MAGNESIUM	46400	J	UG/L	17600	J	UG/L	18000	J	UG/L	6 5	U	UG/L	20500	J	UG/L
MANGANESE	3560	J	UG/L	12500	J	UG/L	12500	J	UG/L	1 3	U	UG/L	578	J	UG/L
MERCURY	0 24		UG/L	0 01	UJ	UG/L	0 01	UJ	UG/L	0 01	UJ	UG/L	0 01	UJ	UG/L
NICKEL	33 6	U	UG/L	4 8	U	UG/L	5 0	U	UG/L	0 72	U	UG/L	15 2	U	UG/L
POTASSIUM	19400	J	UG/L	8680	J	UG/L	9070	J	UG/L	346	UJ	UG/L	5570	J	UG/L
SELENIUM	2 9	U	UG/L	2 9	U	UG/L	2 9	U	UG/L	2 9	U	UG/L	2 9	U	UG/L
SILVER	1 2	U	UG/L	6 5	U	UG/L	0 82	U	UG/L	0 82	U	UG/L	0 82	U	UG/L
SODIUM	443000	J	UG/L	133000	J	UG/L	135000	J	UG/L	156	U	UG/L	46500	J	UG/L
THALLIUM	4 2	U	UG/L	4 5	U	UG/L	6 6	U	UG/L	3 9	UJ	UG/L	3 9	UJ	UG/L
VANADIUM	37 5		UG/L	0 91	J	UG/L	1 6		UG/L	0 57	U	UG/L	1 6		UG/L
ZINC	715		UG/L	10 4	U	UG/L	8 0	U	UG/L	12 5		UG/L	13 4	U	UG/L

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WATER DATA
KATAHDIN
SDG: FTA003

SAMPLE NUMBER	OFF-A-MW6R-01			OFF-A-MW6R-01-F			OFF-A-MW7S-01			OFF-A-MW8R-01			OFF-A-MW9R-01		
SAMPLE DATE	07/11/97			07/11/97			07/10/97			07/08/97			07/09/97		
LABORATORY ID	WN1819-8			WN1819-13			WN1807-2			WN1771-2			WN1787-5		
QC_TYPE	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF:															
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
INORGANICS															
ALUMINUM	958	J	UG/L	14 5	U	UG/L	2120	J	UG/L	645	J	UG/L	159	U	UG/L
ANTIMONY	2 1	U	UG/L	2 1	U	UG/L	2 1	U	UG/L	2 1	U	UG/L	4 1	U	UG/L
ARSENIC	1 8	U	UG/L	1 8	U	UG/L	1 8	U	UG/L	1 8	U	UG/L	1 8	U	UG/L
BARIUM	16 1		UG/L	23 1		UG/L	23 2		UG/L	11 5		UG/L	3 6	U	UG/L
BERYLLIUM	0 14	U	UG/L	0 14	U	UG/L	0 14	U	UG/L	0 14	U	UG/L	0 14	U	UG/L
CADMIUM	0 29	U	UG/L	0 64	U	UG/L	2 9		UG/L	0 19	U	UG/L	0 19	U	UG/L
CALCIUM	30200	J	UG/L	30600	J	UG/L	114000	J	UG/L	85000	J	UG/L	56500	J	UG/L
CHROMIUM	12 1		UG/L	0 58	U	UG/L	7 0		UG/L	15 8		UG/L	1 3	U	UG/L
COBALT	5 0	J	UG/L	28 2		UG/L	87 0		UG/L	62 3		UG/L	2 0	U	UG/L
COPPER	5 5	U	UG/L	3 3	U	UG/L	13 6	J	UG/L	4 4	U	UG/L	2 5	U	UG/L
IRON	2580	J	UG/L	260	J	UG/L	4540	J	UG/L	934	J	UG/L	187	U	UG/L
LEAD	1 4	UJ	UG/L	1 4	UJ	UG/L	9 0	J	UG/L	1 7	J	UG/L	1 4	UJ	UG/L
MAGNESIUM	24100	J	UG/L	23400	J	UG/L	30200	J	UG/L	13200	J	UG/L	11600	J	UG/L
MANGANESE	216	J	UG/L	2760	J	UG/L	11800	J	UG/L	1780	J	UG/L	832	J	UG/L
MERCURY	0 01	UJ	UG/L	0 01	UJ	UG/L	0 01	UJ	UG/L	0 01	UJ	UG/L	0 01	UJ	UG/L
NICKEL	24 1	U	UG/L	37 6	U	UG/L	35 7	U	UG/L	18 0	U	UG/L	6 2	U	UG/L
POTASSIUM	6740	J	UG/L	7780	J	UG/L	12400	J	UG/L	5700	J	UG/L	7020	J	UG/L
SELENIUM	2 9	U	UG/L	2 9	U	UG/L	2 9	U	UG/L	2 9	U	UG/L	2 9	U	UG/L
SILVER	0 82	U	UG/L	0 82	U	UG/L	1 3	U	UG/L	0 82	U	UG/L	0 82	U	UG/L
SODIUM	129000	J	UG/L	134000	J	UG/L	95300	J	UG/L	128000	J	UG/L	41700	J	UG/L
THALLIUM	3 9	UJ	UG/L	3 9	UJ	UG/L	5 9	U	UG/L	3 9	UJ	UG/L	3 9	UJ	UG/L
VANADIUM	1 4		UG/L	0 57	U	UG/L	0 79	J	UG/L	0 71	J	UG/L	0 57	U	UG/L
ZINC	32 6	U	UG/L	11 9	U	UG/L	658		UG/L	12 3	U	UG/L	8 9	U	UG/L

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KATAHDIN
SDG: FTA001

SAMPLE NUMBER:	OFF-A-DUPL4			OFF-A-MW9R-01-F			OFF-A-SW1-0506			OFF-A-SW2-0506			OFF-A-DUPL7		
SAMPLE DATE:	07/09/97			07/11/97			07/11/97			07/11/97			07/11/97		
LABORATORY ID	WN1787-2			WN1819-12			WN1819-2			WN1819-4			WN1819-3		
QC_TYPE:	NORMAL			NORMAL			NORMAL			NORMAL			NORMAL		
% SOLIDS	0 0 %			0 0 %			0 0 %			0 0 %			0 0 %		
FIELD DUPLICATE OF:	OFF-A-MW9R-01												OFF-A-SW2-0506		
	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS	RESULT	QUAL	UNITS
INORGANICS															
ALUMINUM	163	U	UG/L	19 3	U	UG/L	2300	J	UG/L	1980	J	UG/L	3370	J	UG/L
ANTIMONY	2 1	U	UG/L	2 1	U	UG/L	2 1	U	UG/L	2 8	U	UG/L	2 1	U	UG/L
ARSENIC	1 8	U	UG/L	1 8	U	UG/L	6 5	U	UG/L	9 5		UG/L	5 6	U	UG/L
BARIUM	3 5	U	UG/L	2 6	U	UG/L	50 7		UG/L	73 7		UG/L	49 5		UG/L
BERYLLIUM	0 14	U	UG/L	0 14	U	UG/L	0 30	U	UG/L	0 14	U	UG/L	0 14	UJ	UG/L
CADMIUM	0 19	U	UG/L	0 23	U	UG/L	0 19	U	UG/L	1 0	U	UG/L	0 54	U	UG/L
CALCIUM	54200	J	UG/L	46500	J	UG/L	126000	J	UG/L	82300	J	UG/L	125000	J	UG/L
CHROMIUM	1 3	U	UG/L	0 53	U	UG/L	6 7	J	UG/L	5 3		UG/L	7 3	J	UG/L
COBALT	1 8	U	UG/L	3 8	U	UG/L	3 8	U	UG/L	3 8	U	UG/L	4 0	U	UG/L
COPPER	2 0	U	UG/L	4 7	U	UG/L	11 7	U	UG/L	16 3	J	UG/L	21 3	J	UG/L
IRON	183	U	UG/L	10 8	U	UG/L	17900	J	UG/L	49700	J	UG/L	22900	J	UG/L
LEAD	1 4	UJ	UG/L	1 4	UJ	UG/L	27 3		UG/L	31 0	J	UG/L	37 9		UG/L
MAGNESIUM	11100	J	UG/L	9780	J	UG/L	245000	J	UG/L	15400	J	UG/L	251000	J	UG/L
MANGANESE	794	J	UG/L	660	J	UG/L	3150	J	UG/L	1300	J	UG/L	3140	J	UG/L
MERCURY	0 01	UJ	UG/L	0 01	UJ	UG/L	0 01	UJ	UG/L	0 01	J	UG/L	0 04	J	UG/L
NICKEL	5 8	U	UG/L	8 4	U	UG/L	8 4	U	UG/L	13 6	U	UG/L	17 8	U	UG/L
POTASSIUM	6820	J	UG/L	6800	J	UG/L	71500	J	UG/L	5860	J	UG/L	80300	J	UG/L
SELENIUM	2 9	U	UG/L	2 9	U	UG/L	2 9	U	UG/L	2 9	U	UG/L	2 9	U	UG/L
SILVER	0 82	U	UG/L	0 82	U	UG/L	1 5	U	UG/L	0 82	U	UG/L	1 3	U	UG/L
SODIUM	39300	J	UG/L	39100	J	UG/L	1810000	J	UG/L	41200	J	UG/L	1960000	J	UG/L
THALLIUM	3 9	UJ	UG/L	3 9	UJ	UG/L	3 9	UJ	UG/L	4 4	U	UG/L	5 1	U	UG/L
VANADIUM	0 57	U	UG/L	0 57	U	UG/L	8 2	J	UG/L	10 0		UG/L	10 6		UG/L
ZINC	8 0	J	UG/L	8 2	U	UG/L	90 3		UG/L	142		UG/L	114		UG/L

APPENDIX C

SOIL BORING/MONITORING WELL CONSTRUCTION/TEST PIT LOGS

TEST PIT LOG
OLD FIRE FIGHTING TRAINING AREA
NETC
NEWPORT, RI

Location: TP-01

Rationale: Confirm/identify presence or absence of buried subsurface features (i.e. suspected UST for oil, buried piping, etc.)identified on 1953 Y&D drawing No. 637871.

Date: June 30, 1997

Dimensions: 7' x 4' x 1.5' (L x W x D)

B&RE Geologist: T. Dorgan

Excavation Subcontractor: Franklin Environmental Services, Inc.

Sample ID: NA

Depth	Description	USCS	Remarks	MicroFID Reading (ppm)
0'-0.5'	ASPHALT Steel Pipe-1.5" diameter X 12" long. Pipe was removed.		Asphalt varies from 4-6" thick.	
8" - 1'	GRAVELLY SAND. Brown, loose, well graded sand	SW	Fill.	0-1
1'	Conglomerate. Gray with slightly stretched pebbles and cobbles.		Bedrock	

General remarks: No samples collected. No visable contamination or odors, no FID readings above background. CAT 311 Excavator used.

TEST PIT LOG
OLD FIRE FIGHTING TRAINING AREA
NETC
NEWPORT, RI

Location: TP-02

Rationale: Confirm/identify presence or absence of buried subsurface features based on a strong subsurface signal recorded during the metal and buried piping survey.

Date: June 30, 1997

Dimensions: 7' x 4' x 3.75' (L x W x D)

B&RE Geologist: T. Dorgan

Excavation Subcontractor: Franklin Environmental Services, Inc.

Sample ID: OFF-S-TPO2-0203

Depth	Description	USCS	Remarks	MicroFID Reading (ppm)
0-4"	LOAM. Brown, dry, and loose. Grass at surface.		Hollow pipe with 90° elbow and fitting.	1.7
4"-3.5'	SANDY GRAVEL. TRACE SILT. Dry, loose, lt. brown.	GM	FID from inside pipe on S-SE side.	30
3.5'	CONGLOMERATE. Slightly stretched cobbles or imbricated cobbles.		Bedrock.	

General remarks: No staining or odors noted outside of pipe. FID background = approximately 1-1.5 ppm around pipe. Inside pipe on south side is petroleum contamination (wet sediment with a petroleum odor). FID = 30 ppm in this area. Sampled 2-3" BGS area from exterior of pipe on S-SE side of excavation.

Photo Log: Video and 2-3 stills.

TEST PIT LOG
OLD FIRE FIGHTING TRAINING AREA
NETC
NEWPORT, RI

Location: TP-03

Rationale: Confirm presence or absence of buried piping that may have led to various surface training structures (i.e. christmas trees, open fire tanks) identified on Y&D drawing No. 637871.

Date: June 30, 1997

Dimensions: 10' x 6.5' x 2.75' (L x W x D)

B&RE Geologist: T. Dorgan

Excavation Subcontractor: Franklin Environmental Services, Inc.

Sample ID: NA

Depth	Description	USCS	Remarks	MicroFID Reading (ppm)
0-6"	TOPSOIL OR LOAM. Brown, dry, and loose. Grass at surface.		No petroleum contamination noted.	0.0
6"-2.5'	SANDY GRAVEL. TRACE SILT. Trace brick and concrete.	GM	Fill. No piping or metallic objects found.	0.0
2.5'	CONGLOMERATE. Slightly stretched cobbles or imbricated cobbles.		Bedrock. Poss. metals in bedrock? Iron staining noted.	0.0

General remarks: No sample collected. No evidence of any subsurface features or contamination.

Photo Log: Video and still photo.

TEST PIT LOG
OLD FIRE FIGHTING TRAINING AREA
NETC
NEWPORT, RI

Location: TP-04

Rationale: Confirm/identify presence or absence of buried subsurface features (i.e. suspected UST for oil, buried piping, etc.)identified on 1953 Y&D drawing No. 637871. Define presence/absence of buried piping detected in TP-03.

Date: July 1, 1997

Dimensions: 15' x 10' x 3' (L x W x D)

B&RE Geologist: T. Dorgan

Excavation Subcontractor: Franklin Environmental Services, Inc.

Sample ID: OFF-S-TP-04-0102

Depth	Description	USCS	Remarks	MicroFID Reading (ppm)
0-6"	SILTY SAND. Topsoil or loam. Dry, loose, and brown. Grass at surface.			
6"-3'	SAND and GRAVEL. Misc. brick, glass, wood, shingles, metal debris. 2 pipes found as described in remarks.		Fill. Ist Pipe (3" steel). Open ended @ 1.75'. 2nd Pipe (4" steel). Open ended @ 1.75'.	
3'	Stopped excavation due to Potentially Asbestos-Containing Material (PACM).			

General remarks: Both pipes are dipping at low angle to the east. PACM on both sides on bottoms and lower exposed portions. The 4" pipe has a hanger still on it indicating it was not intended for underground use.
Samples taken as a composite from in and around bottom of pipes.

TEST PIT LOG
OLD FIRE FIGHTING TRAINING AREA
NETC
NEWPORT, RI

Location: TP-05

Rationale: Confirm/identify presence or absence of buried subsurface features based on a strong signal recorded during the metal and buried piping survey.

Date: July 1, 1997

Dimensions: 15' x 4' x 8' (L x W x D)

B&RE Geologist: T. Dorgan

Excavation Subcontractor: Franklin Environmental Services, Inc.

Sample ID: OFF-S-TP-05-0708

Depth	Description	USCS	Remarks	MicroFID Reading (ppm)
0-6"	SILTY SAND with grass at surface. Topsoil or loam. Dry, loose and brown.			0.0
6"-5'	SANDY GRAVEL. Mostly fine to coarse gravel and cobbles up to 1.5' diam. Rounded. Trace amounts of brown wood debris at 2' depth. China fragments noted. Dry.		Fill.	
5'-8'	SANDY GRAVEL. Similar to above. Orange/brown color. Damp. Steel cable or wire at approximately 7' BGS on E-SE side of excavation.		Fill.	

General remarks: Water table at approximately 8' BGS.

TEST PIT LOG
OLD FIRE FIGHTING TRAINING AREA
NETC
NEWPORT, RI

Location: TP-06

Rationale: Confirm/identify presence or absence of buried subsurface features (i.e. suspected UST for oil, buried piping, etc.) identified on 1953 Y&D drawing No. 637871.

Date: July 1, 1997

Dimensions: 8' x 4' x 7' (L x W x D)

B&RE Geologist: T. Dorgan

Excavation Subcontractor: Franklin Environmental Services, Inc.

Sample ID: OFF-S-TP-06-0607

Depth	Description	USCS	Remarks	MicroFID Reading (ppm)
0-6"	SILTY SAND beneath grassy surface. Topsoil. Root mat. Dry, loose, brown.			0.0
6"-2'	SANDY GRAVEL. Mostly fine and coarse gravel up to 2 inches, rounded. Some cobbles > 4 inches in length, rounded. Fine and medium sand, brown. Metal debris (strapping, rack scaffolding?)		.	
2'-7'	SANDY GRAVEL. Similar to above with concrete rubble, rebar, metal (sheet) debris, concrete footings, duct work, wood, metal strapping visible.			
7'	CONCRETE slab at base. Sounds solid. Possible foundation for former UST?			

General remarks: No groundwater visible in test pit.

Photo Log: Video and still photos.

TEST PIT LOG
OLD FIRE FIGHTING TRAINING AREA
NETC
NEWPORT, RI

Location: TP-07

Rationale: Confirm/identify presence or absence of buried subsurface features (i.e. suspected UST for oil, buried piping, etc) based on finding of a potential concrete foundation or pad in TP-06. TP-07 excavation added at the request of RIDEM.

Date: July 2, 1997

Dimensions: 20' x 4' x 8' (L x W x D)

B&RE Geologist: R. Bastow

Excavation Subcontractor: Franklin Environmental Services, Inc.

Sample ID: OFF-S-TP-07-0708

Depth	Description	USCS	Remarks	MicroFID Reading (ppm)
0-6"	SILTY SAND with grass at surface. Topsoil or loam. Dry, loose, brown.	SM		0.0
6"-8'	SANDY GRAVEL. With cobbles, metal strapping, and concrete rubble with rebar.	GM	Fill.	
4'	CONGLOMERATE.		Bedrock.	

General remarks: Potential water table at 8 ft. BGS.

Photo Log: Video and 2 still photos.

TEST PIT LOG
OLD FIRE FIGHTING TRAINING AREA
NETC
NEWPORT, RI

Location: TP-08

Rationale: Confirm/identify presence or absence of buried subsurface features (i.e. suspected UST for oil, buried piping, etc.) identified on 1953 Y&D drawing No. 637871.

Date: July 2, 1997

Dimensions: 16' x 4' x 4' (L x W x D)

B&RE Geologist: R. Bastow

Excavation Subcontractor: Franklin Environmental Services, Inc.

Sample ID: OFF-S-TP-08-0304

Depth	Description	USCS	Remarks	MicroFID Reading (ppm)
0-6"	TOPSOIL or LOAM with grass at surface.	SM		0.0
6"-2.5'	SAND AND GRAVEL with cobbles. Brown. Pipe running NW-SE. Pipe is black iron pipe (6" sewer pipe?).	GM		
2.5'	SHALE.		Bedrock.	

General remarks: No groundwater encountered.

Photo Log: Video.

TEST PIT LOG
OLD FIRE FIGHTING TRAINING AREA
NETC
NEWPORT, RI

Location: TP-09

Rationale: Confirm/identify presence or absence of buried subsurface features based on a strong signal recorded during the metal and buried piping survey, the presence of surface scars on the ground in this location, and on the absence of a UST in TP-08.

Date: July 2, 1997

Dimensions: 13' x 4' x 3' (L x W x D)

B&RE Geologist: R. Bastow

Excavation Subcontractor: Franklin Environmental Services, Inc.

Sample ID: NA

Depth	Description	USCS	Remarks	MicroFID Reading (ppm)
0-1'	TOPSOIL with grass at surface.	SM		0.0
1'-3'	SANDY GRAVEL with cobbles.	GW		
3'	CONGLOMERATE.		Bedrock.	

General remarks: No subsurface features, stained soil, or groundwater encountered.

Photo Log: Video and still photos.

TEST PIT LOG
OLD FIRE FIGHTING TRAINING AREA
NETC
NEWPORT, RI

Location: TP-10

Rationale: Confirm/identify presence or absence of buried subsurface features (i.e. suspected UST for gasoline, buried piping, etc.) identified on 1953 Y&D drawing No. 637871.

Date: July 2, 1997

Dimensions: 11' x 4' x 9" (L x W x D)

B&RE Geologist: R. Bastow

Excavation Subcontractor: Franklin Environmental Services, Inc.

Sample ID: NA

Depth	Description	USCS	Remarks	MicroFID Reading (ppm)
0-9"	TOPSOIL with grass at surface.	SM		0.0
9"	CONCRETE slab with exposed rebar.			

General remarks: NA

Photo Log: Video and still photos.

TEST PIT LOG
OLD FIRE FIGHTING TRAINING AREA
NETC
NEWPORT, RI

Location: TP-11

Rationale: Reconfirm presence or absence of buried subsurface features adjacent to former Building 134, based on refusal in TP-10 (i.e. foundation).

Date: July 2, 1997

Dimensions: 15' x 4' x 6' (L x W x D)

B&RE Geologist: R. Bastow

Excavation Subcontractor: Franklin Environmental Services, Inc.

Sample ID: OFF-S-TP-11-0506

Depth	Description	USCS	Remarks	MicroFID Reading (ppm)
0-6"	TOPSOIL with grass at surface.	SM		0.0
6"-5'	GRAVELLY SAND. Pieces of brick and concrete.	GM	Fill.	
5'-6'	GRAVELLY SAND. Similar to above but stained black, saturated with petroleum. Metal frame and cable.			35

General remarks: Water table at 6 ft. BGS. Strong petroleum odor.

TEST PIT LOG
OLD FIRE FIGHTING TRAINING AREA
NETC
NEWPORT, RI

Location: TP-12

Rationale: Confirm/identify presence or absence of buried subsurface features (i.e. suspected UST for gasoline, buried piping, etc.) identified on 1953 Y&D drawing No. 637871

Date: July 2, 1997

Dimensions: 10' x 4' x 5' (L x W x D)

B&RE Geologist: R. Bastow

Excavation Subcontractor: Franklin Environmental Services, Inc.

Sample ID: OFF-S-TP-12-0405

Depth	Description	USCS	Remarks	MicroFID Reading (ppm)
0-8"	TOPSOIL with grass at surface.	SM		0.0
8"-5'	SANDY GRAVEL. Pieces of clay tile pipe and brick. A pipe containing petroleum was encountered at 5'.	GM	Fill.	

General remarks: NA

Photo log: Video and still photos.

TEST PIT LOG
OLD FIRE FIGHTING TRAINING AREA
NETC
NEWPORT, RI

Location: TP-13

Rationale: Confirm/identify presence or absence of buried subsurface features (i.e. suspected oil/water separator) and further evaluate the nature of the buried/interior materials of the central mound.

Date: July 3, 1997

Dimensions: 24' x 4' x 7' (L x W x D)

B&RE Geologist: R. Bastow

Excavation Subcontractor: Franklin Environmental Services, Inc.

Sample ID: OFF-S-TP-13-0607

Depth	Description	USCS	Remarks	MicroFID Reading (ppm)
0-9"	TOPSOIL with grass at surface.	SM		0.0
9"-7'	SAND AND GRAVEL. SOME SILT. Concrete pieces 4-6" in length. Top of concrete foundation at 4' BGS.	GM	Fill.	0.0
7'	SAND AND GRAVEL. Similar to above but oil-stained. Water seeps in from sidewalls at 7'.			3.2

General remarks: Test pit did not locate the bottom of the foundation. Sample taken from area in which the MicroFID reading of 3.2 ppm was obtained.

Photo log: Video and still photos.

TEST PIT LOG
OLD FIRE FIGHTING TRAINING AREA
NETC
NEWPORT, RI

Location: TP-14

Rationale: Confirm/identify presence or absence of buried piping associated with the former location of Building 132.

Date: July 3, 1997

Dimensions: 31' x 4' x 4.5' (L x W x D)

B&RE Geologist: R. Bastow

Excavation Subcontractor: Franklin Environmental Services, Inc.

Sample ID: OFF-S-TP-14-0304

Depth	Description	USCS	Remarks	MicroFID Reading (ppm)
0-9"	TOPSOIL with grass at surface.	SM		0.0
9"-4'	SAND AND GRAVEL. SOME SILT. Cobbles.	GM		
4'-4.5'	SAND AND GRAVEL. Similar to above but potentially petroleum impacted. Brown stained soils. Water table at 4.5' BGS.			2-10

General remarks: Test pit did not locate subsurface features or fill debris. Sample taken from approximately 4 feet in depth in area of soils with petroleum odor.

TEST PIT LOG
OLD FIRE FIGHTING TRAINING AREA
NETC
NEWPORT, RI

Location: TP-15

Rationale: Confirm/identify presence or absence of buried piping associated with the former location of Building 132.

Date: July 3, 1997

Dimensions: 26' x 4' x 5' (L x W x D)

B&RE Geologist: R. Bastow

Excavation Subcontractor: Franklin Environmental Services, Inc.

Sample ID: OFF-S-TP-15-0506

Depth	Description	USCS	Remarks	MicroFID Reading (ppm)
0-1'	TOPSOIL with grass at surface.	SM		0.0
1'-4.5'	SAND AND GRAVEL. SOME SILT. Construction debris including bricks, small pieces of concrete, and steel debris.	GM	Fill.	
4.5'-5'	SAND AND GRAVEL. Similar to above but potentially petroleum impacted. Black soil. Water table at 5' BGS.			2-10

General remarks: Fill material consists largely of brick and metal debris.

Photo log: Video and still photos.

TEST PIT LOG
OLD FIRE FIGHTING TRAINING AREA
NETC
NEWPORT, RI

Location: TP-16

Rationale: Further evaluate the nature of a suspected foundation for the oil/water separator. Widened excavation at the request of RIDEM.

Date: July 7, 1997

Dimensions: 12.6' x 4' x 10' (L x W x D)

B&RE Geologist: K. Jalkut

Excavation Subcontractor: Franklin Environmental Services, Inc.

Sample ID: OFF-S-TP-16-1011

Depth	Description	USCS	Remarks	PID Reading (ppm)
0-7"	SILTY SAND. Topsoil, root mat, grass. Light brown. Fine to medium sand.	SM	Fill.	0.0
7"-3'3"	SAND AND GRAVEL. Bricks, metal, rounded cobbles up to 5" in length. Fine to coarse sand.	GM		
3'3"-5'	SAND AND GRAVEL. Similar to above but color has darkened to black. Asphalt-like.			
5'-10'	SAND AND GRAVEL. Similar to above with increased corroded metal debris, bricks, and wood. Potentially oil laden soil at bottom of excavation.		Fill. PID reading taken at approximately 10 feet.	4

General remarks: NA

Photo log: Video and 3 still photos.

TEST PIT LOG
OLD FIRE FIGHTING TRAINING AREA
NETC
NEWPORT, RI

Location: TP-17

Rationale: Confirm presence/absence of buried subsurface features (i.e. piping) in proximity to approximate former location of Building 135. Confirm presence or absence of soil contaminants based on the previous discovery of petroleum-like substances in a utility trench excavated parallel to the fence line.

Date: July 7, 1997

Dimensions: 16' x 3.5' x 9' (L x W x D)

B&RE Geologist: K. Jalkut

Excavation Subcontractor: Franklin Environmental Services, Inc.

Sample ID: OFF-S-TP-17-0809

Depth	Description	USCS	Remarks	PID Reading (ppm)
0-1'	SILTY SAND. Topsoil, root mat, grass. Light brown. Dry.	SM	Fill.	0.0
1'-3'	SAND AND GRAVEL. SOME SILT. Fine to coarse sand. Coarse rounded gravel. Light brown. Cobbles > 5 inches.	GM		
3'-9'	SAND AND GRAVEL. SOME SILT. Fine to coarse sand. Dark brown, dry. Fewer cobbles than above.		Water with light brown oil on top enters side of excavation at approximately 8'.	9

General remarks: Petroleum odors encountered at water table, approximately 8 ft.

Photo log: Video and still photos.

BORING LOG FOR: NETC Newport, OFFTA
PROJECT NO: 7578
LOGGED BY: M. Healey TRANSCRIBED BY:
DRILLED BY (Company/Driller): EDI / Scott
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO.: MW-101
START DATE: 070997
COMPLETION DATE: 070997
MON. WELL NO.: MW-101
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG / WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors, geological classification; rock weathering; etc.)	FIELD SCREENING DATA METHOD = [FID Headspace]
	15 / 13	18/24	S-1	1.0		Brown	Silty SAND; fine sand with silt +	SM	dry	
2	50 / 27		0730				roots, Brick (Loam) Fill			0.0 ppm
	32 / 28	18/24	S-2			Gray	Silty sand; medium to fine sand	SM		
4	11 / 26		0800				with some silt and trace			
	11 / 14	14/24	S-3	5.0			gravel (Fill)			
6	9 / 9		0830			Gray	Silty gravelly Sand; fine to	SM/GM	S-3 odor +	
	4 / 3	20/24	S-4 (lab Sample)				coarse Sand with some sl		Sheen	
8	3 / 3		0845				plastic fines (Till) angular		S-4 sl odor +	
	38 / 42	16/24	S-5		Dense	Gray/	gravel to 1.5 in.		Sheen (Sample for lab)	
10	60 / 58		0912			Black				
	43 / 26	24/24	S-6				S-5 Silty gravelly sand, fine-		S-5 oil sheen +	
12	38 / 66		0940				Coarse sand with sl plastic		odor	
	38 / 65 / 120/1	13/24	S-7				fines gravel to 1 1/4 in. (angular)		S-6 no sheen no	
			1010				till		odor	

TYPE OF DRILLING RIG.
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING.

FID Broke @ 0800 hrs.

GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO. 101

PAGE 1 of 1

BORING LOG FOR: NER Newport RI / OFFTA
PROJECT NO: 7578
LOGGED BY: M Healy
DRILLED BY (Company/Driller): EDI / Scott
GRD. SURFACE ELEVATION:
TRANSCRIBED BY:
ELEVATION FROM:

BORING NO.: MW-102
START DATE: 07-07-97
COMPLETION DATE: 07-08-97
MON. WELL NO.: MW-102
CHECKED BY:

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG / WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc)	FIELD SCREENING DATA METHOD = [FID/Hnu]
	12 9	14/24	1405 hrs. S-1	0.5		Brn	Silty Sand; fine sand & silt	SM		-0-
2	15 16						some roots Loam			
	18 22	14/24	1413 hrs S-2			Brn/ Brn	Silty Sand; fine to medium sand	SM	moist	S-2 8ppm
4	29 36						some silt trace gravel to 1.5in			
	31 24	9/24	1448 hrs S-3	Fill			(fill)			S-3 120ppm
6	41 58						S-3 oil in nose			
	6 3	14/24	1502 S-4				S-4 oily sand			
8	3 7						S-5 oily sand			S-4 2,700ppm
	32 28	9/24	1530 S-5							
10	16 17								last sample 7-7-97	S-5 29ppm.
	6 8	0/24	S-6							
12	9 9								Water @ 4.5' BGS	
	7 7	6/24	S-7						0740 7-8-97	S-7 10ppm
14	12 9									
	30 28	29/24	S-8							
16	31 29						S 8			S-8 400ppm

TYPE OF DRILLING RIG:

METHOD OF ADVANCING BORING: Driven Wash (4in)
METHOD OF SOIL SAMPLING: 3 in Spoon (140 lbs)
METHOD OF ROCK CORING:

Background FID in Breathing Zone 1400 hrs, 1500 hrs 1530 hrs, 2ppm @ Casing Zero ppm Breathing Zone.

GROUNDWATER LEVELS. Water @ 4.5' BGS @ 0740 7-8-97
OTHER OBSERVATIONS:

Brown & Root Environmental

BORING NO 102
PAGE: 1 of 2

BORING LOG FOR: NETC Newport RE / OFFTA
PROJECT NO: 7578
LOGGED BY: M Healey TRANSCRIBED BY:
DRILLED BY (Company/Driller): EDE / Scott
GRD. SURFACE ELEVATION: ELEVATION FROM:

BORING NO. : MW-102
START DATE: 07-07-97
COMPLETION DATE: 07-08-97
MON. WELL NO.: MW-102
CHECKED BY :

DEPTH (FEET)	BLOWS PER 6"	SAMP REC. / SAMP LENG.	SAMPLING TIME & SAMPLE NO. (QA/QC STATUS)	DEPTH MAT'L CHG./ WELL PROF'L	SOIL DENSITY/ CONSIS. or ROCK HARD.	CLR	MATERIAL CLASSIFICATION	USCS or ROCK BRKN	REMARKS (moisture condition; odors; geological classification; rock weathering; etc)	FIELD SCREENING DATA METHOD = [PID/Head Space]
	13	22/24	S-9 9:50	-17-			Silty Sand, mostly fine sand	SM		S-9 50ppm
18	14				Dense	gray	with some fine gravel to occasional			
	19						gravel to 1in. (till)			S-10 20ppm
	23									
	20	14/24	S-10 10:30				S-10 similar to S-9			
	28									
20	38									
	50									
	21	16/24	S-11 10:52			gray	S-11 Silty sand fine-med sand	SM		S-11 8ppm
	27									
22	36						with some silt and subplatiz fine			
	34									
	10	20/24	S-12 11:07				fine gravel sub rounded to 1in.			S-12 3ppm
	18									
	41						oxidized layer (till)			
24	50									
	42	13/24	S-13 11:48				S-12 similar to S-11			S-13 5ppm
	57									
	70						S-13 similar to S-11			
26	49									
	26	16/24	S-14 11:58							S-14 5ppm
	32									
	43						S-14 similar to S-11			
28	49									
	63	10/12	S-15 12:15	-29'2"-			S-15 similar to S-11			S-15 5.0ppm
	124									
	60/2"									

TYPE OF DRILLING RIG:
METHOD OF ADVANCING BORING:
METHOD OF SOIL SAMPLING:
METHOD OF ROCK CORING:
GROUNDWATER LEVELS:
OTHER OBSERVATIONS:

Brown & Root Environmental

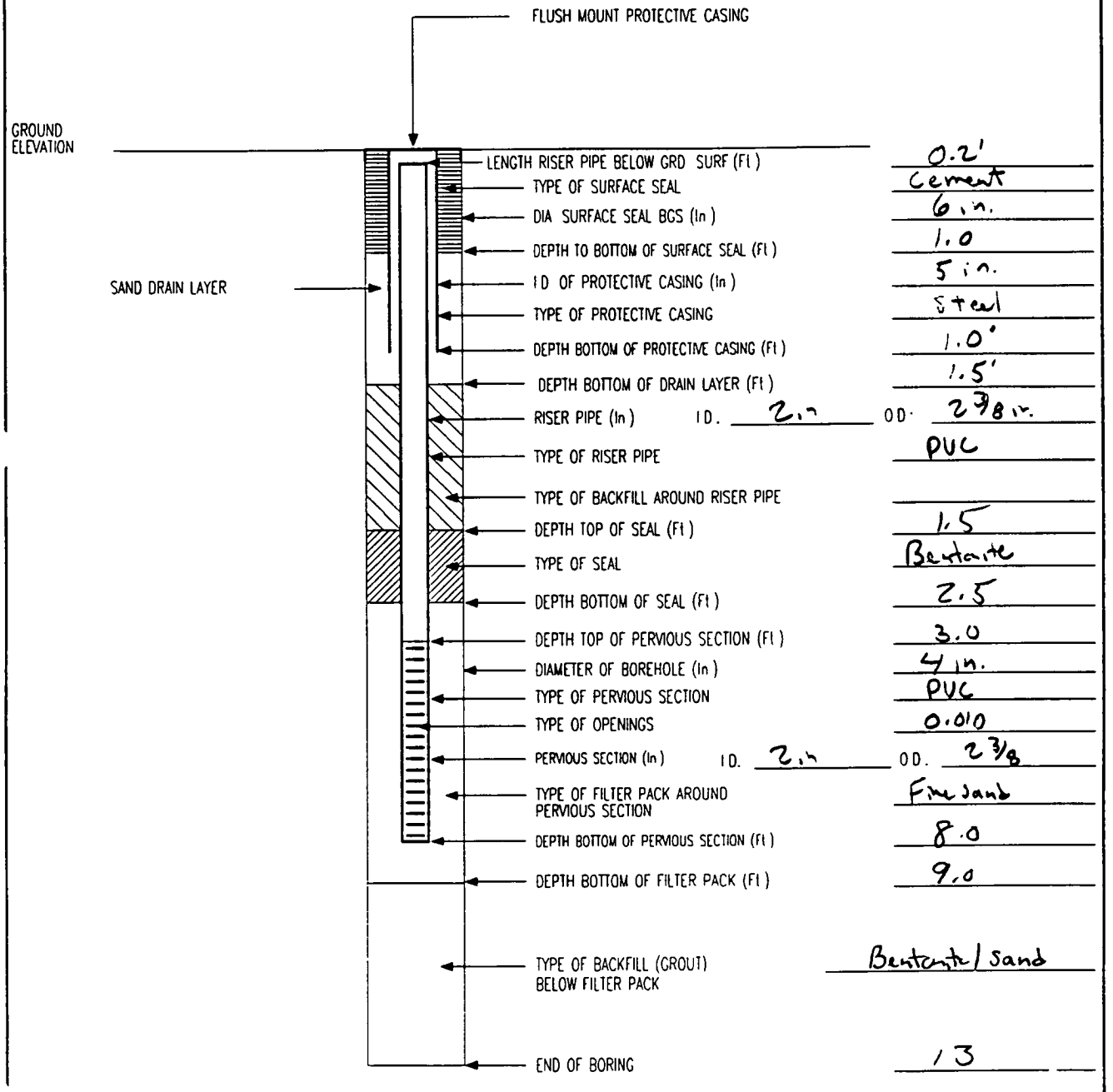
BORING NO : MW-102
PAGE: 2 of 2

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG — BROWN & ROOT ENVIRONMENTAL

PROJECT NAME	NETC Newport OFFTA	PROJECT NO	7578
PROJECT LOCATION	Newport RI.	WELL NO	101
CLIENT	US Navy	BORING NO	101
CONTRACTOR	EDI	DRILLER	Scott
LOGGED BY	M. Healey	DATE	27-09-97
CHECKED BY		DATE	

BORING LOCATION

PAGE 1 OF 1



LENGTH RISER PIPE BELOW GRD SURF (Ft)	0.2'
TYPE OF SURFACE SEAL	Cement
DIA SURFACE SEAL BGS (In)	6 in.
DEPTH TO BOTTOM OF SURFACE SEAL (Ft)	1.0
ID OF PROTECTIVE CASING (In)	5 in.
TYPE OF PROTECTIVE CASING	Steel
DEPTH BOTTOM OF PROTECTIVE CASING (Ft)	1.0'
DEPTH BOTTOM OF DRAIN LAYER (Ft)	1.5'
RISER PIPE (In) ID. 2 in OD. 2 3/8 in.	
TYPE OF RISER PIPE	PVC
TYPE OF BACKFILL AROUND RISER PIPE	
DEPTH TOP OF SEAL (Ft)	1.5
TYPE OF SEAL	Bentonite
DEPTH BOTTOM OF SEAL (Ft)	2.5
DEPTH TOP OF PERVIOUS SECTION (Ft)	3.0
DIAMETER OF BOREHOLE (In)	4 in.
TYPE OF PERVIOUS SECTION	PVC
TYPE OF OPENINGS	0.010
PERVIOUS SECTION (In) ID. 2 in OD. 2 3/8	
TYPE OF FILTER PACK AROUND PERVIOUS SECTION	Fine Sand
DEPTH BOTTOM OF PERVIOUS SECTION (Ft)	8.0
DEPTH BOTTOM OF FILTER PACK (Ft)	9.0
TYPE OF BACKFILL (GROUT) BELOW FILTER PACK	Bentonite/Sand
END OF BORING	13

GENERAL NOTE

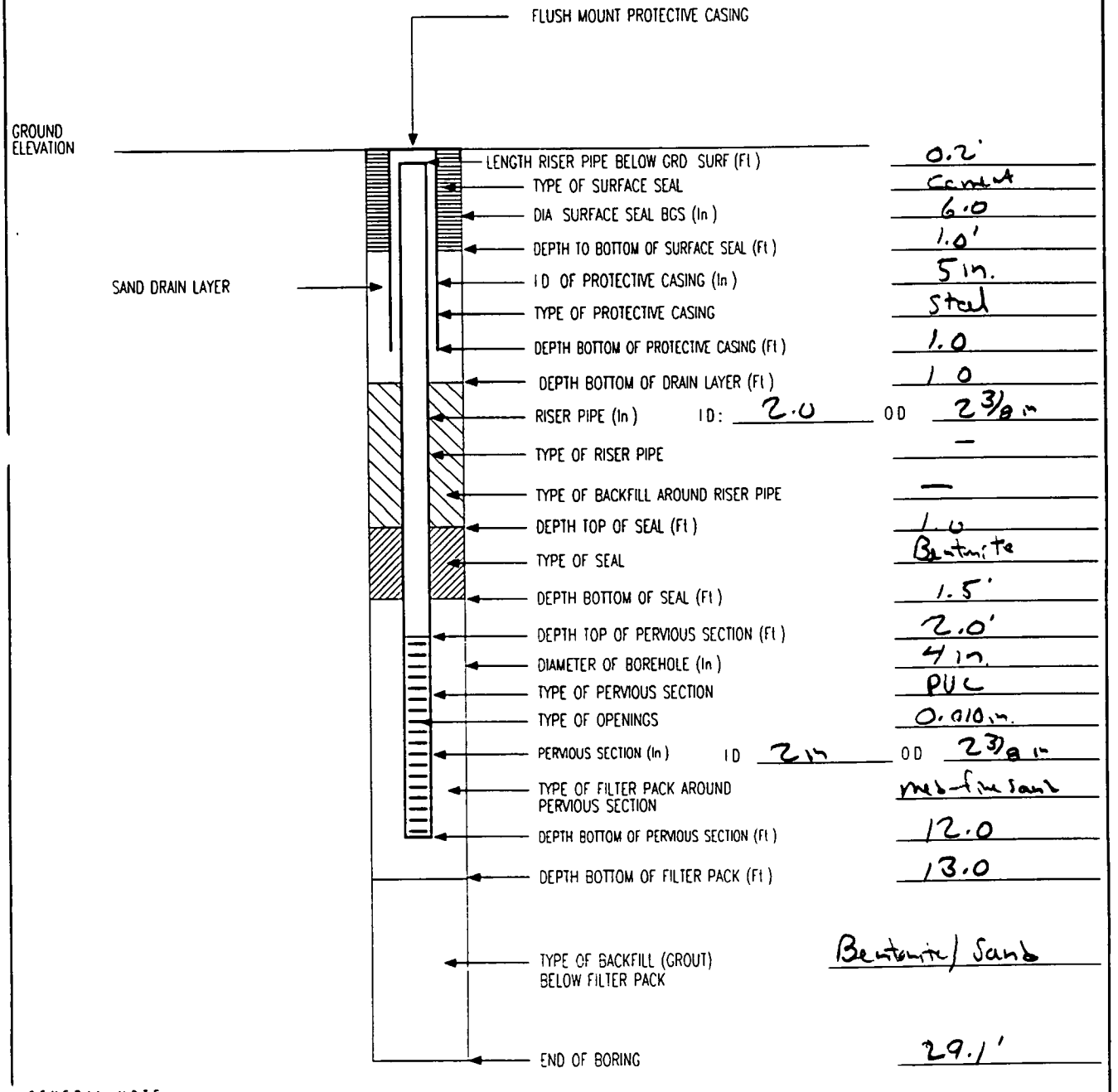
1 Entry of 0.00 for Ground Elevation Indicates that Surveyed Ground Elevation is NOT Available

FLUSH MOUNT MONITORING WELL CONSTRUCTION LOG

BROWN & ROOT ENVIRONMENTAL

PROJECT NAME	NETC NEWPORT / OFFTA	PROJECT NO	7578
PROJECT LOCATION	Newport RI	WELL NO	MW-102
CLIENT	U.S. Navy	BORING NO	MW-102
CONTRACTOR	EOI	DRILLER	Scott
LOGGED BY	M. Healey	DATE	07-08-97
CHECKED BY		DATE	
		BORING LOCATION	

PAGE 1 OF 1



GENERAL NOTE

1 Entry of 0.00 for Ground Elevation indicates that Surveyed Ground Elevation is NOT Available